PUMPOUT REPORT 2016

California Clean Vessel Act Pumpout Performance Report

San Francisco Estuary Partnership
The Bay Foundation

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This report is funded by the Division of Boating And Waterways Clean Vessel Act Education Program and the Federal Clean Vessel Grant Act Program.

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Cover photos:
Angel's Gate Lighthouse by John Hollenbeck,
Ocean reflection by Jeff Grocky

Discharging sewage overboard creates environmental and human health problems, especially in a state with more than four million recreational boaters. To reduce the negative impacts of discharging sewage overboard, all boaters are encouraged to use sewage management facilities, including pumpout stations, dump stations, and mobile pumpout services. Since 2008, the San Francisco Estuary Partnership and The Bay Foundation have monitored public sewage pumpout stations throughout the state, with funding from California State Parks Division of Boating and Waterways through the Clean Vessel Act grant program. This first ever, Pumpout Report highlights findings on the condition and operational status of pumpout stations from 2014 to 2016.

⟶ KEY PARTNERS

NORTHERN CALIFORNIA

San Francisco Estuary Partnership (SFEP), a national estuary program, monitors 87 pumpout stations throughout San Francisco Bay and Delta region.
www.sfestuary.org / (510) 622-2304

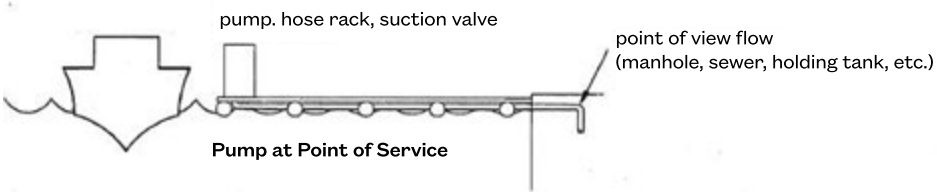
SOUTHERN CALIFORNIA

The Bay Foundation (TBF), a 501(c)3 non-profit organization, monitors 71 pumpout stations from Santa Barbara County to San Diego County.
www.santamonicabay.org / (888) 301-2527

Funding for this project is provided by a grant from California State Parks Division of Boating and Waterways (DBW) through the federal Clean Vessel Act (CVA) grant program. This program provides grants to both public and private boating facilities for up to 75 percent of the construction, renovation, operation, and maintenance of pumpout and dump stations to service recreational vessels. Funding comes from the Sport Fish Restoration and Boating Trust Fund, administered federally by the U.S. Fish and Wildlife Service. For more information, visit www.dbw.parks.ca.gov, call (888) 326-2822, or contact:
California State Parks Division of Boating and Waterways
One Capitol Mall, Suite 500
Sacramento, CA 95814

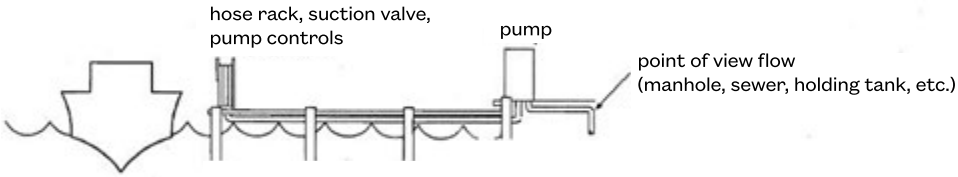
STATIONARY PUMPOUT

Pumpout systems are typically found as a stand-alone feature within a marina. They are located dockside where there is sufficient space for a boater to dock and not affect others around them. There are several configurations for these systems:



Pump at Point of Service

This diagram shows the pump system (hose station and pump) as one unit, at the point of service.



Pump Remotely Installed

This diagram shows the pump as two separate entities. The hose rack is at the point of service while the pump is set apart, either at the end of the dock or it can be located landside.

This diagram shows a multiple hose station layout. A single pumpout unit can be plumbed to multiple hose stations, and equipped with a Remote Service System as shown in the diagram. There are limitations to multiple hose station configurations.

IN-SLIP PUMPOUT

Another option available to marinas includes in-slip pumpout systems. There are several variations to this type of system. However, this system allows a boater to empty the sewage holding tank without leaving the slip. Variations include:

In-slip hose cart at West Point Harbor.
Photo by Adrien Baudrimont

Option 1: The marina installs a centralized pumpout station with multiple pumpout hydrants located throughout the marina, and spaced (approximately 40 feet to 60 feet apart) so that a portable hose can reach from the hydrant, located on the dock, to each nearby vessel. The pumpout hose is mounted on a mobile cart. The cart with the hose is wheeled to each boat as it needs pumpout servicing. The hose is unreeled and connected to both the hydrant and boat to be serviced. Wireless transmitters are available that allow convenient on-off operation without the need for someone to run back to the pump each time it needs activating.

Option 2: The marina installs multiple pumpout hydrants throughout the marina, and spaced so that a portable hose can reach from the hydrant to each nearby vessel. A mobile cart containing both a sewage pump and hose is then then wheeled to each boat as it needs pumpout servicing. The hose is unreeled and connected to both the hydrant and boat to be serviced. The sewage pump is activated and uses the hydrant and piping system to discharge the boats holding tank contents.

In-slip pumpout tank at Oyster Cover Marina.
Photo by Adrien Baudrimont

Option 3: The marina uses a mobile cart that is equipped with a sewage pumpout, hose, and small holding tank (typically 20 to 40 gallons). This cart is located on the docks and is wheeled to each boat as it needs pumpout servicing. The cart, now loaded with sewage is then wheeled to a hydrant located somewhere on the docks and the pump is now used to discharge the sewage landside for disposal and treatment.

MOBILE PUMPOUT

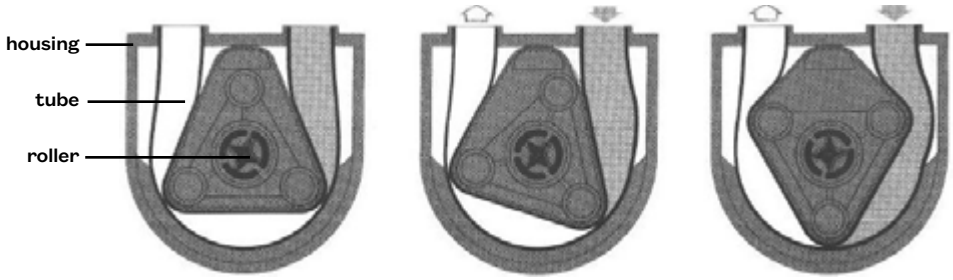
In many areas of California, boaters can have their boat sewage removed by a mobile service. Mobile service vessels are retrofitted to hold a large quantity of sewage and can typically pump out dozens of vessels without having to discharge into a dockside pumpout system. This service can be managed by a contractor or provided by the marina itself, or simply allowed on premises as a boater solicited service.

There are benefits and drawbacks to each of these setups, but the benefits of mobile pumpouts are very clear. One of the largest obstacles boaters cite when asked about their sewage discharge is convenience. Mobile pumpouts are a great solution as they can be arranged when boaters are not at the marina. This hands free option is relatively inexpensive and can be a very attractive addition to a marina's compendium of services.

There are three primary types of pumps used in a sewage pumpout system.

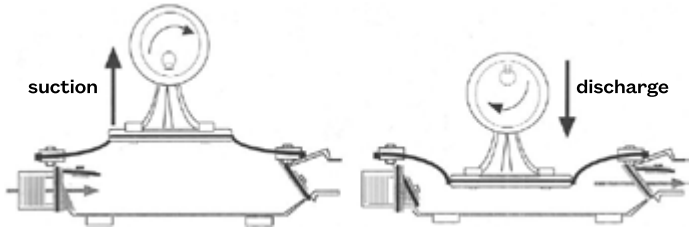
PERISTALTIC

Peristaltic pumps work by displacement, alternating compression and relaxation on a tube, drawing contents into the tube and creating suction. The tube is located in an enclosed housing and is compressed by a roller.



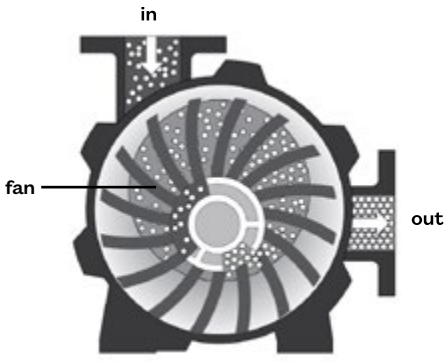
DIAPHRAGM

Diaphragm pumps work by displacement, they use the backward and forward motion of a diaphragm (or membrane) to fill and empty a chamber with the contents being pumped, creating a suction. This pump works like a plunger.



VACUUM

Vacuum pumps work by creating a pressure difference usually with the use of a fan. The fan forces contents forward increasing pressure in front and decreasing pressure behind the fan, this creates suction. A vacuum (which creates a pressure difference) is what allows humans to drink through a straw.



⟶ MAINTENANCE RECOMMENDATIONS

Preventative maintenance is the best solution for avoiding problems. Marina operators should inspect the pump and pump enclosure on a weekly basis and, when possible, daily. These inspections should check for leaks, cracks, unusual wear, and if there is missing equipment.

HOSE

Look for damage that could affect performance of the system, like tears or a collapsed hose wall. To keep repair costs down, sections of hose can be repaired rather than replacing the entire hose; however the number of repairs on one hose should be limited as to not impede optimum operation.

SIGHT GLASS

Look for cracks and make sure the movement of effluent is visible through the sight glass.

NOZZLE

Look for signs of wear, including cracks and tears. Ensure that the tip has not been cut off and there is a backflow flap in place.

BALL VALVE

Check that handles are not broken and can be easily rotated.

HOUR COUNTER

Ensure that the hour counter is not broken and functions properly.

SIGNAGE

Ensure there is adequate signage and it is legible. Signage should include pumpout symbol, funding credit, instructions, hours of operation, pumpout cost, contact number for problems, and on/ off buttons.

UNUSUAL NOISES

Turn the pump on and listen for unusual noises including squeaking, rattling, and grinding, also listen for air leaks, specifically around threaded connections.

Photo credit:
1. Victoria Gambale, 2. Georgia Tunioli, 3. J. Harvell, 4. Michelle Staffield, 5. Victoria Gambale, 6. Carrie Baldwin

⟶ WHY MONITOR PUMPOUT STATIONS?

The goal of pumpout station monitoring is to promote a sense of accountability for condition and operational status of pumpout stations, promote useful pollution prevention amenities for boaters, and decrease the amount of sewage discharged into waterways.

Pumpout station monitoring allows San Francisco Estuary Partnership and The Bay Foundation to:

— ensure stationary pumpout equipment is operational for use at all times.
— track the general condition and evaluate performance of pumpout stations.
— assist facilities that do not meet Division of Boating and Waterways grant requirements by offering a reliable source of technical assistance and resources.
— promote the installation and proper maintenance of pumpout stations.
— maintain contact with recipients of DBW's grant.

⟶ MONITORING RANGE & FREQUENCY

SOUTHERN CALIFORNIA

The Bay Foundation monitors 71 public sewage pumpout stations in 13 Southern California harbors from Santa Barbara to San Diego.

NORTHERN CALIFORNIA

San Francisco Estuary Partnership monitors 87 public pumpout stations in 65 Northern California marinas throughout the San Francisco Bay and Delta.

All units are monitored on a quarterly basis in the months of February, May, August, and November. Since monitoring is only conducted four times a year the grades presented in this report are a window into how the unit operates based on this limited data.

⟶ MONITORING PARAMETERS

Signage is important
Balboa Yacht Basin, Photo by Carrie Baldwin

California Pumpout Station Monitoring Data Sheets (Appendix 1) are used to standardize data collection.

San Francisco Estuary Partnership and The Bay Foundation note presence or absence of the following signage:

— Pumpout symbol
— Funding credit
— Instructions for pumpout operation
— Hours of operation
— Pumpout usage cost
— Contact number for problems
— On/off buttons

Condition of parts are rated.
0 = absent, 1 = needs repair, 2 = worn, 3 = excellent

Specific parts rated by San Francisco Estuary Partnership and The Bay Foundation

Part	San Francisco Estuary Partnership	The Bay Foundation
Hose	√	√
Nozzle	√	√
Sight glass	√	√
Pedestal	√	√
On/ off buttons	√	√
Motor unit	√	√
Ball valve		√
Nozzle's backflow flap	√	

Hour counter
Photo by Georgia Tunioli

Each motor unit is equipped with an hour counter meter. During site visits, a reading from the meter is recorded. The meter is activated by the motor once it is engaged and counts the elapsed time that the motor runs. The time logged by the meter gives insight to how often the unit is being used. However, due to the immense variation in pumpout type, process technique, and the use of "delay" switches, determining an accurate quantity of sewage pumped from the hour counter is not feasible.

Vacuum pressure is an indication of how well the unit operates and is measured during each monitoring event, in inches of mercury (inHg). By attaching a vacuum gauge to the end of a pumpout hose or nozzle, a reading is taken after a one minute adjustment period has elapsed. Vacuum pressure varies from 0 to 30 inHg. According to equipment manufacturers the optimum vacuum pressure is 22 inHg.

Vacuum pressure Photo by Victoria Gambale

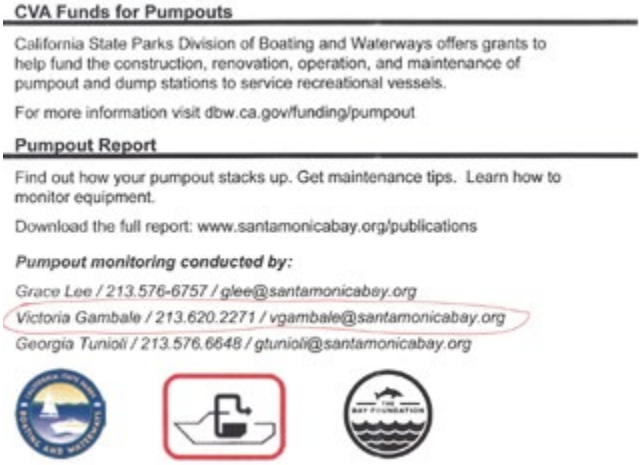
Vacuum time is another indication of how well the unit operates. During each monitoring event, this is measured by timing how long it takes a pumpout to evacuate five gallons of water. The optimum vacuum time is less than 10 seconds.

Vacuum time Photo by Grace Lee

Other parameters recorded during site visits include: make and model of pumpout, pump type, approximate distance from pump to hose stand, and any recent developments.

Although vacuum pressure and vacuum time tests are used as an indication of how well a unit works, they are not directly comparable to how quickly the unit will empty sewage from a boat's holding tank. These measurements, along with other data collected, are used collaboratively to determine the overall condition of a pumpout station and offer assistance and recommendations to facility operators when needed.

It is important to San Francisco Estuary Partnership, The Bay Foundation, and California State Parks Division of Boating and Waterways to keep in close contact with facility managers and be available for questions, clarification on monitoring, and be a reliable source for technical assistance. When there are managers on-site, staff leaves a site visit evaluation card that shows the name of surveyor, vacuum measurements, date of visit, and special notes. When a manager is not on site, staff follows up with the manager, at a later date via mail, e-mail, or phone, especially if there were issues of concern from the monitoring. The monitoring effort and follow-up allow staff to work collaboratively with facility managers to resolve any problems that may arise.



CVA Funds for Pumpouts

California State Parks Division of Boating and Waterways offers grants to help fund the construction, renovation, operation, and maintenance of pumpout and dump stations to service recreational vessels.

For more information visit dbw.ca.gov/funding/pumpout

Pumpout Report

Find out how your pumpout stacks up. Get maintenance tips. Learn how to monitor equipment.

Download the full report: www.santamonicabay.org/publications

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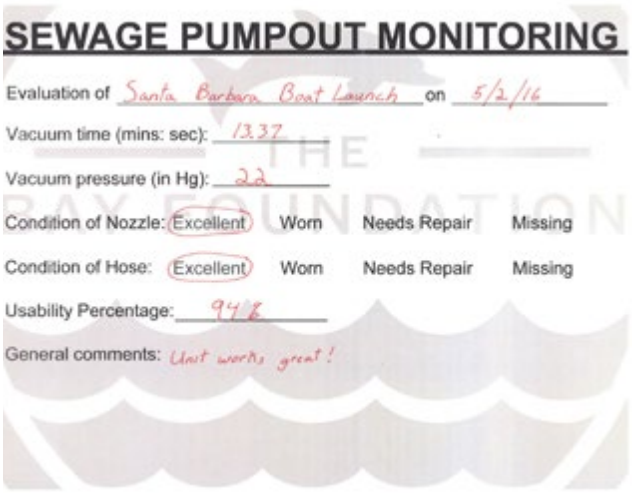
Evaluation card front



SEWAGE PUMPOUT MONITORING

Evaluation of Santa Barbara Boat Launch on 5/2/16

Vacuum time (mins: sec): 13.37

Vacuum pressure (in Hg): 22

Condition of Nozzle: (Excellent) Worn Needs Repair Missing

Condition of Hose: (Excellent) Worn Needs Repair Missing

Usability Percentage: 94%

General comments: Unit works great!

Evaluation card back

Percentage	Description
90–100	Excellent
80–89	Good
70–79	Fair
60–69	Poor
0–59	Very Poor

In order to standardize the analysis throughout the state for direct comparisons, three parameters are used to determine percentages: vacuum pressure, vacuum time, and condition of parts (specifically hose and nozzle). These three parameters are considered equally important and therefore each parameter represents 33.33% of the total percentages.

The grade for vacuum pressure is calculated as a percentage. The reading is divided by 22. I.E. a reading of 21 divided by 22 is 0.9545, which equals 95.45% for vacuum pressure.

Vacuum time is grouped into 5 second increments from 0 to 60 and assigned a number:
0 to < 5 seconds = 12
5 to < 10 seconds = 11
10 to < 15 seconds = 10
15 to < 20 seconds = 9
20 to < 25 seconds = 8
25 to < 30 seconds = 7
30 to < 35 seconds = 6
35 to < 40 seconds = 5
40 to < 45 seconds = 4
45 to < 50 seconds = 3
50 to < 55 seconds = 2
55 to < 60 seconds = 1
60 and greater = 0

The assigned number is divided by 12. I.E. a vacuum time of 9.95 seconds is assigned an 11, divided by 12 is 0.9166, which equals 91.66% for vacuum time.

The condition of parts is calculated as a percentage. The hose and nozzle are rated on a scale of 0 to 3: 0 absent, 1 needs repair, 2 worn, 3 excellent. The two readings are averaged and divided by 3. I.E. if the nozzle was rated as a 2 and the hose rated as a 3, the average is 2.5 divided by 3 is 0.8333, which equals 83.33% for condition of parts.

The three percentages from vacuum pressure, vacuum time, and condition of parts are then averaged together. I.E. the average of the three percentages above is 90.15%. This percentage indicates the likelihood that a boater will have a successful experience at the pump. We will define this concept as "usability percentage" in the tables to follow.

For this report there are two analyses for each unit. The historic analysis averages the percentages of 8 monitoring events from 2014 to 2015 and the 2016 analysis averages the percentages of 4 monitoring events in 2016.

Each harbor section includes a map of the harbor, table of usability percentages and pump type, a "showcase" which highlights a unique feature, and a table of monitoring details. Monitoring details include status when a unit is non-operational or non-accessible, a general description about the unit, and in some cases notes.

In some instances a unit's analysis is determined based on less monitoring events or parameters. In these instances an asterisk (*) is placed next to the percentage and an explanation is provided.

SANTA BARBARA COUNTY

Santa Barbara Harbor features beautiful views from the Harbor Walkway. Photo by Victoria Gambale

SANTA BARBARA COUNTY IS HOME TO ONE HARBOR

SANTA BARBARA — SANTA BARBARA HARBOR

SANTA BARBARA — SANTA BARBARA HARBOR

FACILITY	2016 USABILITY %	HISTORIC USABILITY %	PUMP TYPE
Marina One, near/ west	91	65	Peristaltic
Marina One, mid/ PQ finger	92	87	Peristaltic
Marina One, far/ RS finger	89	83	Peristaltic
Fuel Dock	86	62	Peristaltic
Boat Launch	*96	85	Peristaltic

⟶ SHOW CASE

Photo by Georgia Tunioli

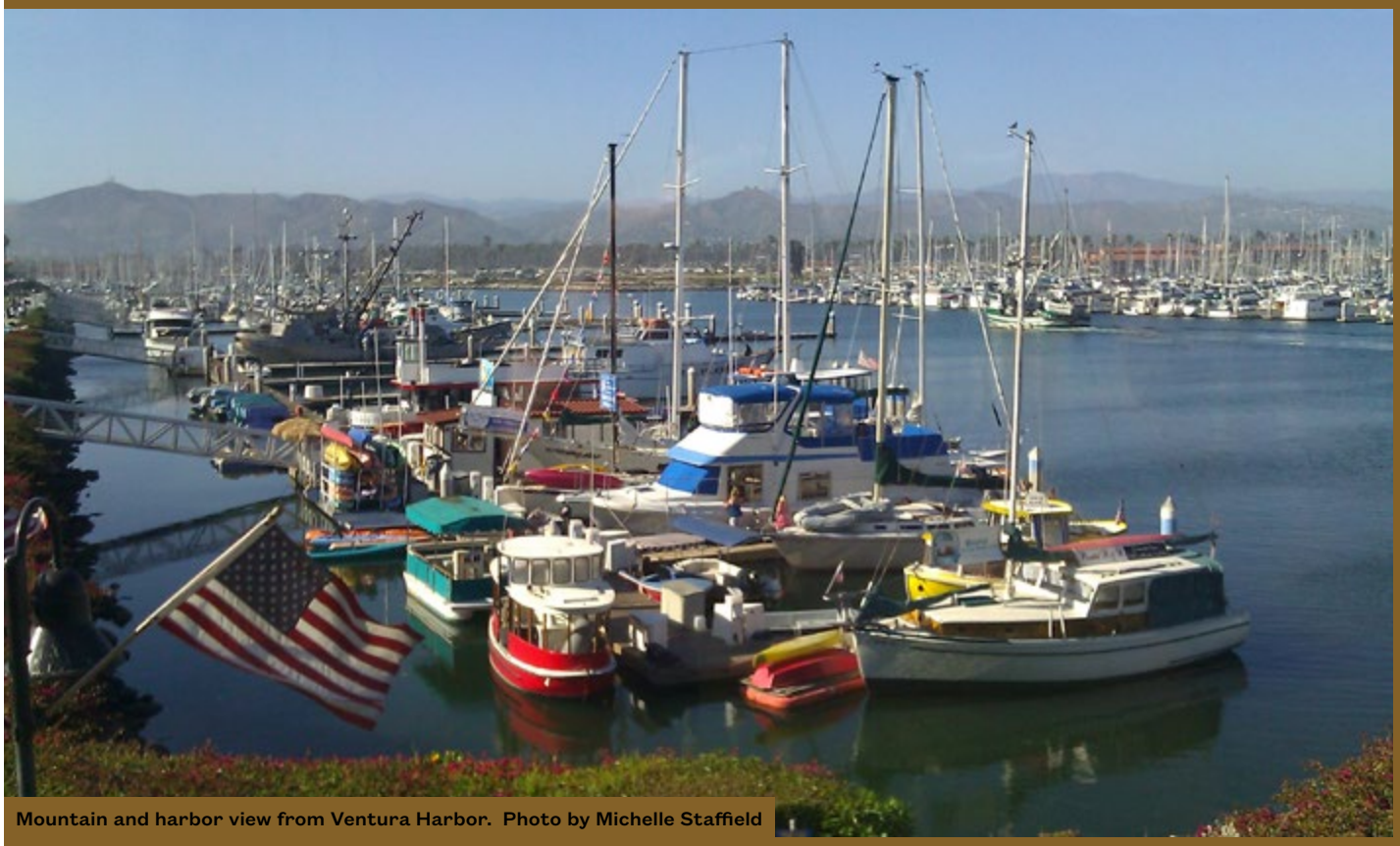
This sign works as a helpful reminder for boaters to remove the hose from the hanger for optimum performance of the pumpout system.

⟶ MONITORING DETAILS

FACILITY	STATUS	DESCRIPTION
Marina One		
Near	Non-operational May 2014	
Mid		New unit
Far		New unit
Fuel Dock		Dated unit
Boat Launch	Non-accessible Nov. 2016	
**Notes*	*In November 2016, the unit was non-accessible due to a large cruise ship. 2016 grade is based on three of the four monitoring events.*	

*See page 10 for follow-up taken after each monitoring site visit.

VENTURA COUNTY



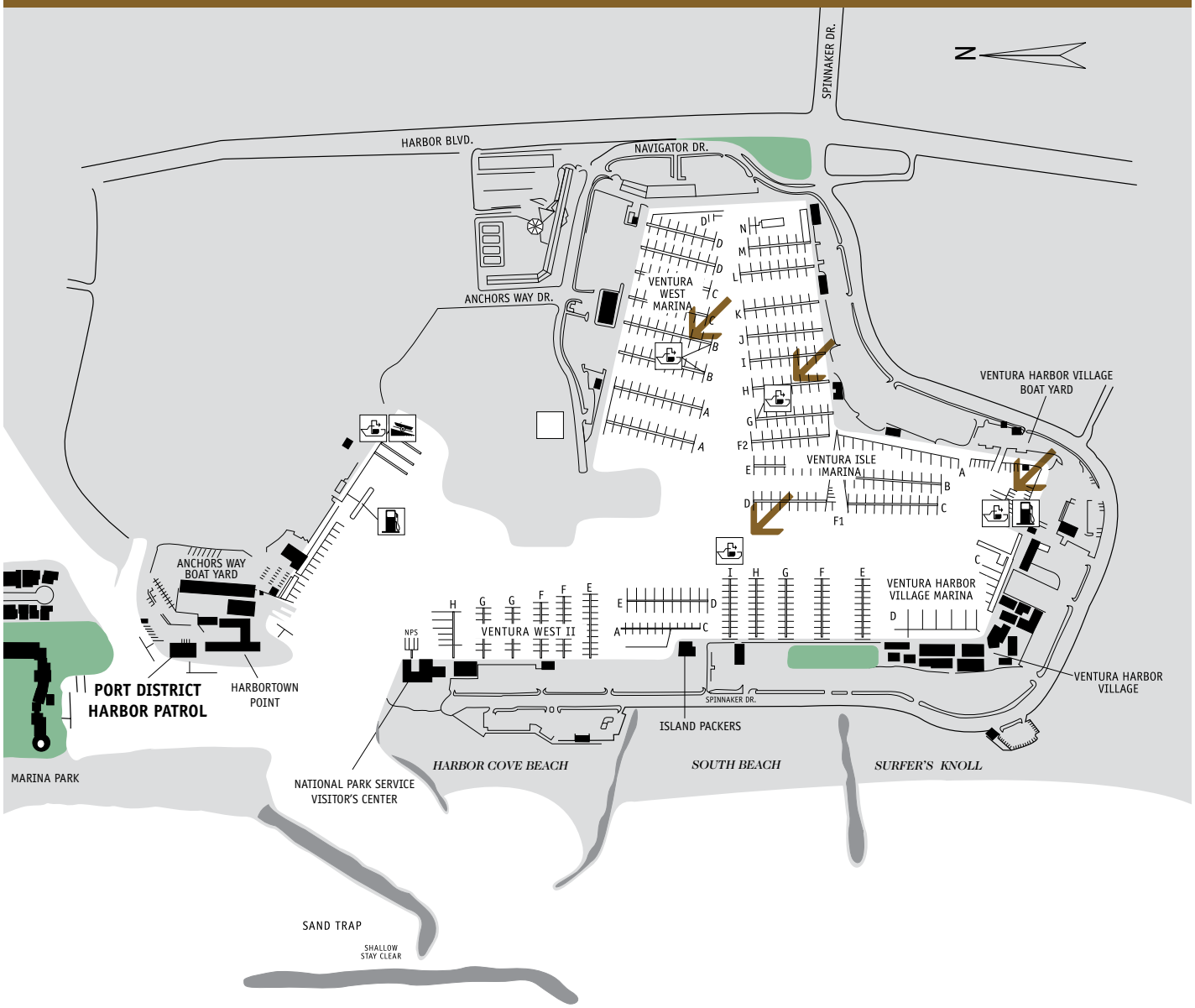
Mountain and harbor view from Ventura Harbor. Photo by Michelle Staffield

VENTURA COUNTY IS HOME TO TWO HARBORS

VENTURA — **VENTURA HARBOR**

VENTURA — **CHANNEL ISLANDS HARBOR**

VENTURA — VENTURA HARBOR



FACILITY	2016 USABILITY %	HISTORIC USABILITY %	PUMP TYPE
Ventura West Marina, B dock left/ east	78	76	Diaphragm
Ventura West Marina, B dock right/ west	66	60	Diaphragm
Ventura Isle Marina, G dock	87	82	Diaphragm
Ventura Harbor Marine Fuel, near	74	*89	Diaphragm
Ventura Harbor Marine Fuel, far	67	*89	Diaphragm
Island Packers, I dock	86	82	Peristaltic

*See Notes under Monitoring Details.

VENTURA — VENTURA HARBOR

⟶ SHOW CASE

Photo by Victoria Gambale

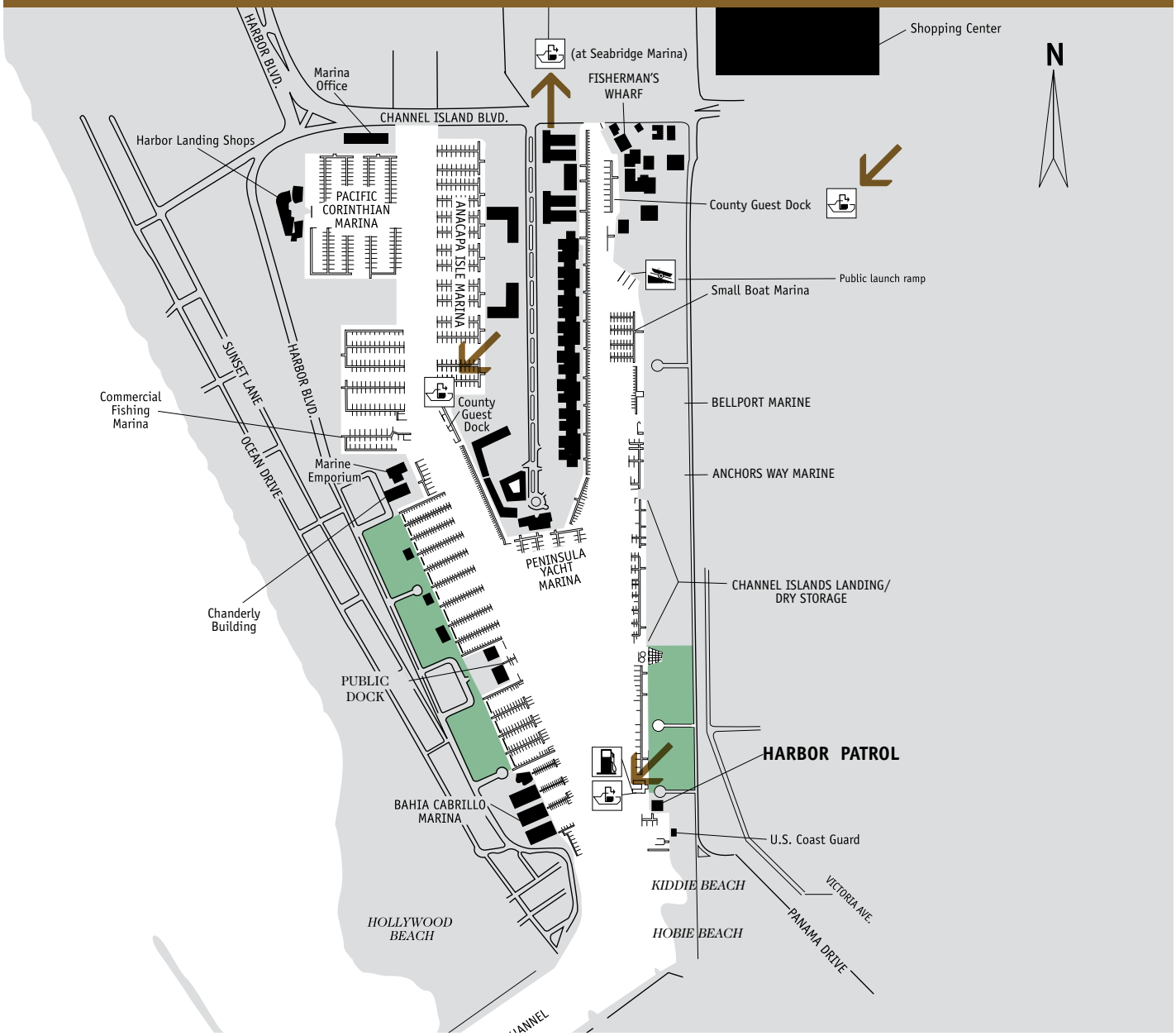
Ventura Harbor Marine Fuel has stands next to each pumpout. This is the perfect place to safely secure the end of the hose; a compartment also allows for easy access to oil absorbents.

⟶ MONITORING DETAILS

FACILITY	STATUS	DESCRIPTION
Ventura West Marina		
B dock left/east		Consistently performs fairly
B dock right/west	Non-operational Aug. 2014	Performs poorly
Notes	*These are older units. Management is responsive to feedback and quick to fix any issues.*	
Ventura Isle Marina		Consistently performs well
Ventura Harbor Marine Fuel		
Near	Non-accessible Feb. 2015, Non-operational Feb. 2016	
Far	Non-accessible Feb. 2015, Non-operational Feb. 2016	
**Notes*	*These two units share a motor and pump with each other. In February 2015, the units were inaccessible and non-operational due to dock damage. Since the units were non-accessible and repairs were expedited, February 2015 monitoring event was not included in the grade and the historic grade is based on 7 of 8 monitoring events.*	
Island Packers		Consistently performs well

*See page 10 for follow-up taken after each monitoring site visit.

VENTURA — CHANNEL ISLANDS HARBOR



FACILITY	2016 USABILITY %	HISTORIC USABILITY %	PUMP TYPE
Seabridge Marina	*89	–	Peristaltic
Peninsula Park, County Guest Dock	95	87	Peristaltic
East Bank Guest Dock, near	97	94	Peristaltic
East Bank Guest Dock, far	97	95	Peristaltic
Harbor Patrol Dock	92	85	Peristaltic

VENTURA — CHANNEL ISLANDS HARBOR

⟶ SHOW CASE

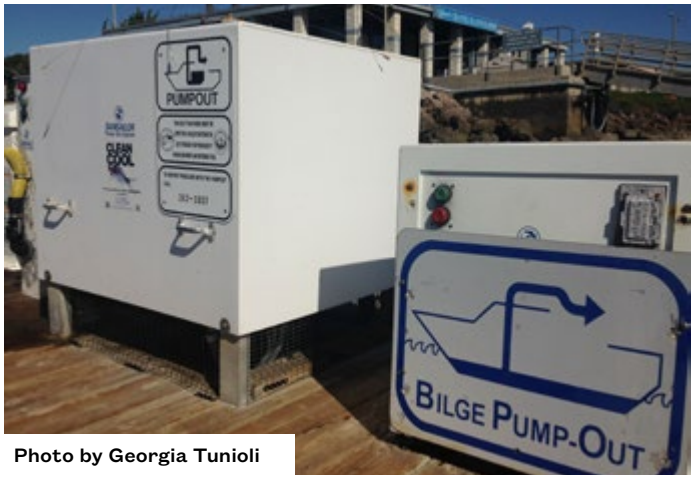


Photo by Georgia Tunioli

Located on the Harbor Patrol dock, alongside the sewage pumpout, is a bilge pumpout. Sewage pumpouts are unable to properly process oily bilge water and should only be used for sewage. If management notices a sewage pumpout being used for oily bilge water they can post appropriate signage and consider installing a bilge pumpout. In order to ensure this bilge pumpout is not used improperly, a boater must ask Harbor Patrol staff to turn it on. Before staff turns on the bilge pumpout, they use a handheld sensor to detect if there are any flammable liquids in the bilge. If flammable liquids are present or Harbor Patrol determines the use of the bilge pumpout is not appropriate, the boater is directed to a boat yard to ensure the material is properly disposed.

It is extremely important for all sewage pumpout units to be consistently operational, especially in Channel Islands Harbor which is a no discharge zone.

⟶ MONITORING DETAILS

FACILITY	STATUS	DESCRIPTION
Seabridge Marina	Non-accessible Nov. 2016	
** Notes*	*Monitoring began in August 2016. Since the unit was inaccessible in November 2016 the 2016 grade is based on one monitoring event.*	
Peninsula Park, County Guest Dock		Performs well
East Bank Guest Dock		
Near		Consistently performs excellently
Far		Consistently performs excellently
Harbor Patrol Dock	Non-operational May 2015	Performs well

*See page 10 for follow-up taken after each monitoring site visit.

LOS ANGELES COUNTY

Sea lions rest on a buoy just outside King Harbor. Photo by John Hollenbeck

LOS ANGELES COUNTY IS HOME TO FIVE HARBORS

LA — **MARINA DEL REY HARBOR**

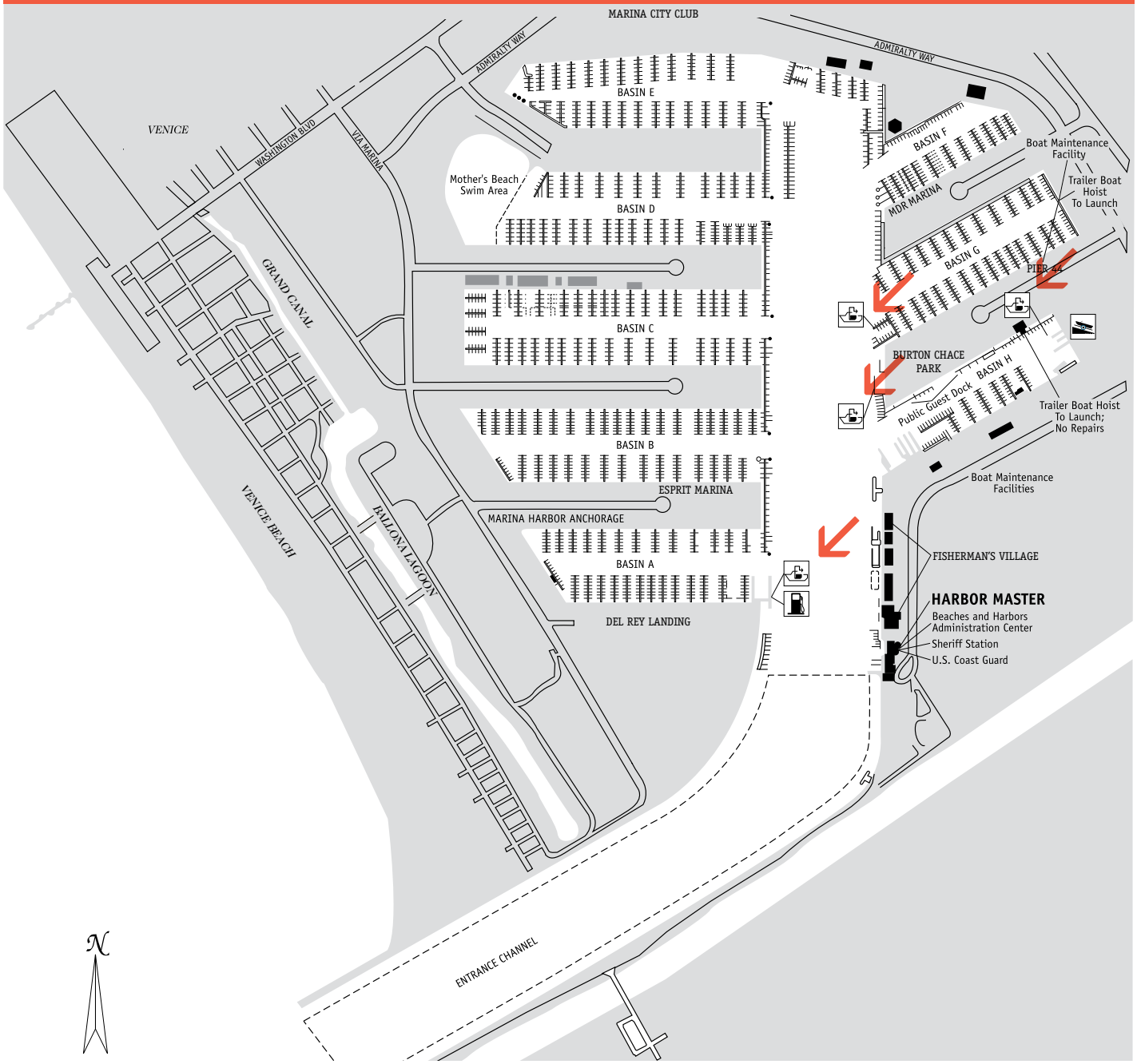
LA — **KING HARBOR**

LA — **PORT OF LOS ANGELES**

LA — **PORT OF LONG BEACH** / Shoreline

LA — **PORT OF LONG BEACH** / Los Alamitos

LA — MARINA DEL REY HARBOR



FACILITY	2016 USABILITY %	HISTORIC USABILITY %	PUMP TYPE
Del Rey Landing, near	*94	*82	Peristaltic
Del Rey Landing, far	*96	*86	Peristaltic
Anchorage 47	*94	–	Peristaltic
Launch Ramp	47	68	Peristaltic
Burton Chace Park	86	*92	Peristaltic

*See Notes under Monitoring Details.

LA — MARINA DEL REY HARBOR

⟶ SHOW CASE

Photo by Victoria Gambale

Del Rey Landing is a full service fuel dock with two sewage pumpout units. At this facility, staff will pump out a sewage holding tank for a nominal fee of $5. This is the only full service, stationary public pumpout located in Southern California.

⟶ MONITORING DETAILS

FACILITY	STATUS	DESCRIPTION
Del Rey Landing		
Near	Non-accessible May 2015	Consistently performs very well
Far	Non-accessible Feb. 2016, May 2016	Consistently performs very well
**Notes*	*Units were non-accessible due to use by a large yacht. Near unit historic grade is based on seven of the eight monitoring events. Far unit historic grade is based on six of the eight monitoring events. In February and May 2016, the far unit was non-accessible and its 2016 grade is based on two of the four monitoring events.*	
Anchorage 47		
**Notes*	*Monitoring began in August 2016. 2016 grade based on two of four monitoring events.*	
Launch Ramp	Non-operational Nov. 2015, Feb. 2016, Aug. 2016	Usually performs fairly
Burton Chace Park	Non-accessible Feb. 2014	New unit, performs well
**Notes*	*Unit was non-accessible due to replacement of the dock and pumpout. Historic grade is based on seven of the eight monitoring events.*	

*See page 10 for follow-up taken after each monitoring site visit.

LA — KING HARBOR

⟶ SHOW CASE

Photo by Victoria Gambales

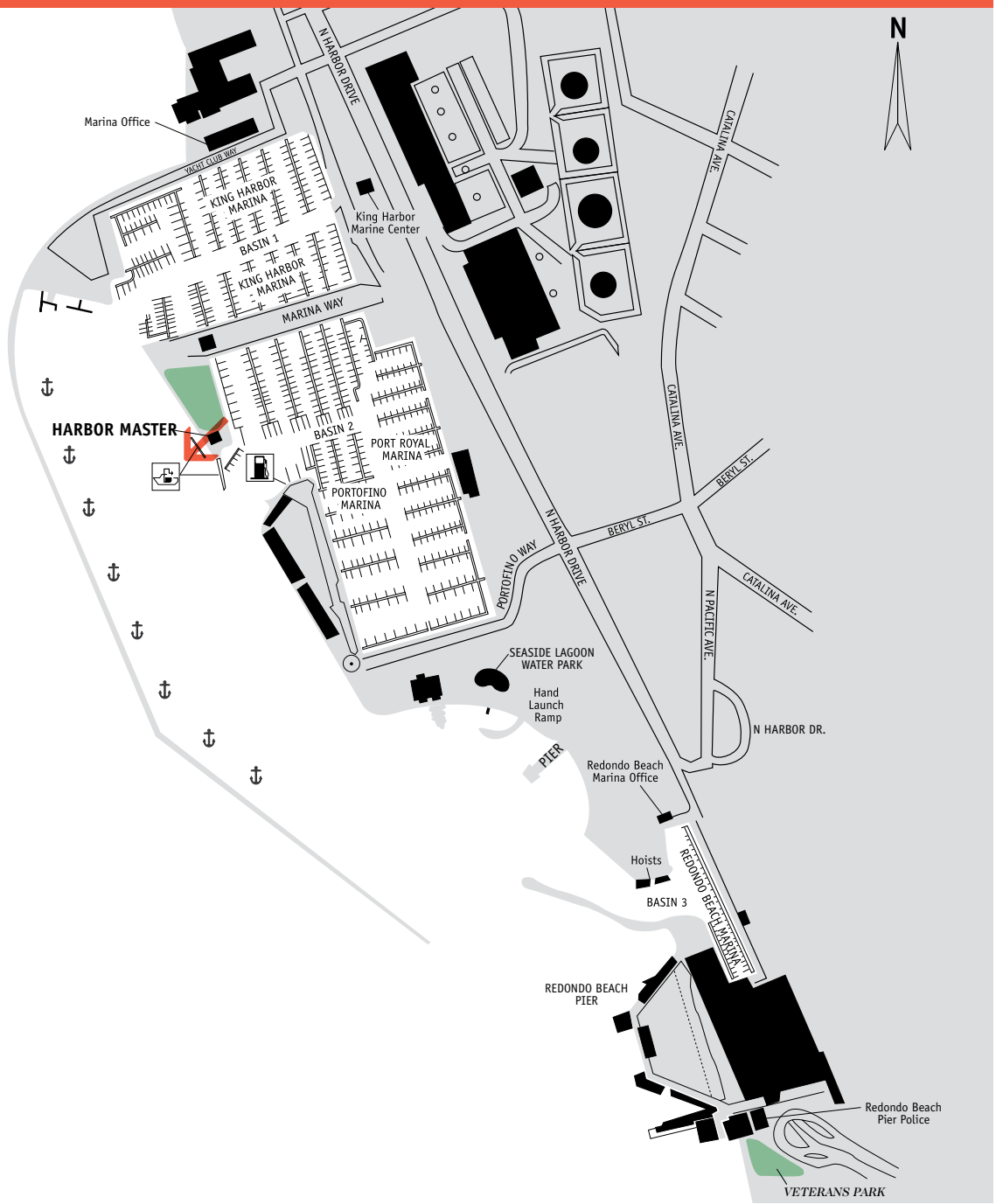
Sea lions can be fun to watch but are also a nuisance. They can damage docks and accumulated waste is unsightly. To combat this problem, King Harbor installed a rolling railing system that acts as a physical deterrent to sea lions. This solution works very well.

⟶ MONITORING DETAILS

FACILITY	STATUS	DESCRIPTION
Harbor Patrol	Non-operational Aug. 2015	New unit, performs well

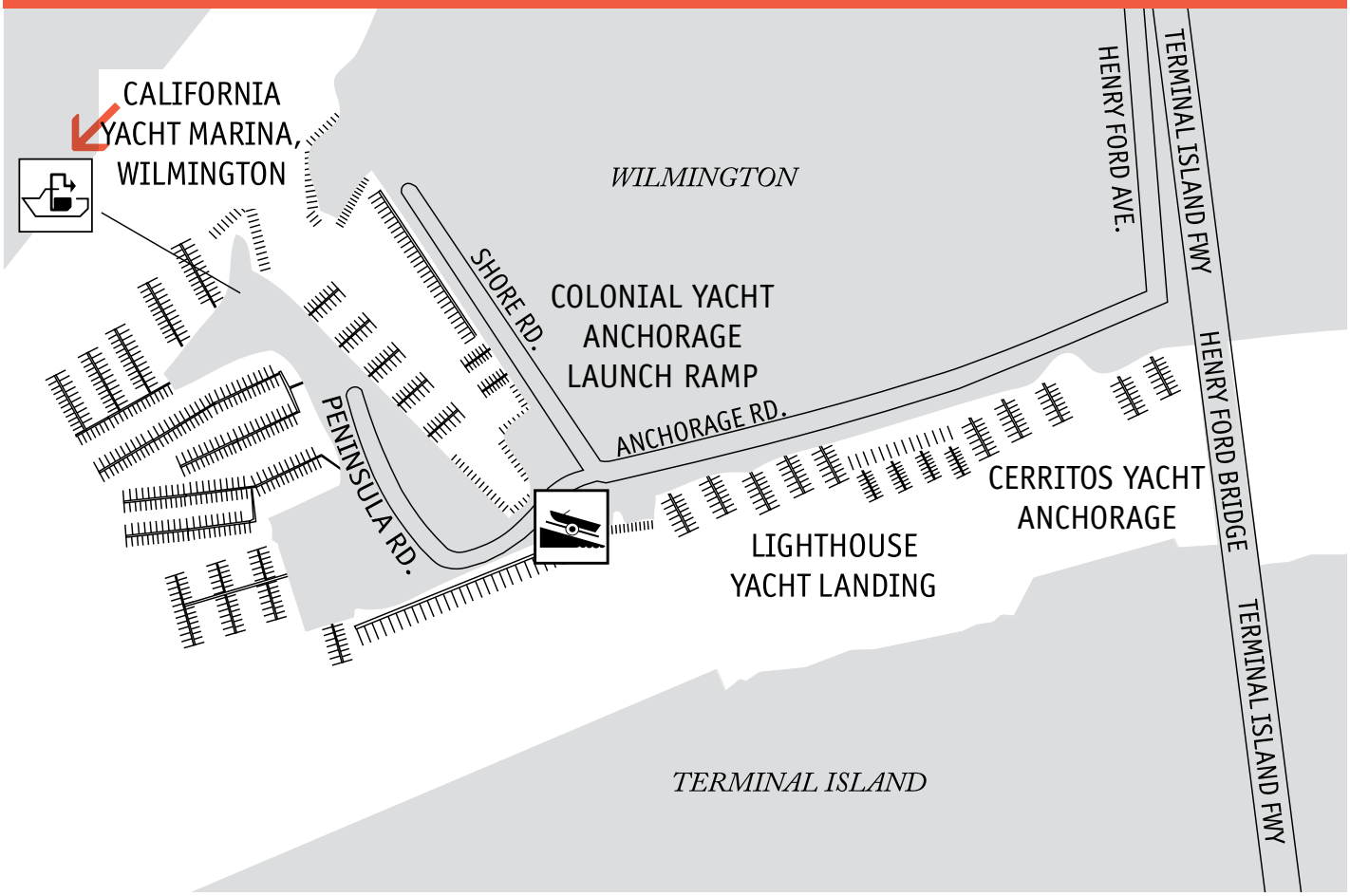
*See page 10 for follow-up taken after each monitoring site visit.

LA — KING HARBOR



FACILITY	2016 USABILITY %	HISTORIC USABILITY %	PUMP TYPE
Harbor Patrol, small boat dock	95	78	Peristaltic

LA — PORT OF LOS ANGELES



FACILITY	2016 USABILITY %	HISTORIC USABILITY %	PUMP TYPE
California Yacht Marina, Wilmington, F dock	64	53	Diaphragm

LA — PORT OF LOS ANGELES

⟶ SHOW CASE

Photo by Victoria Gambale

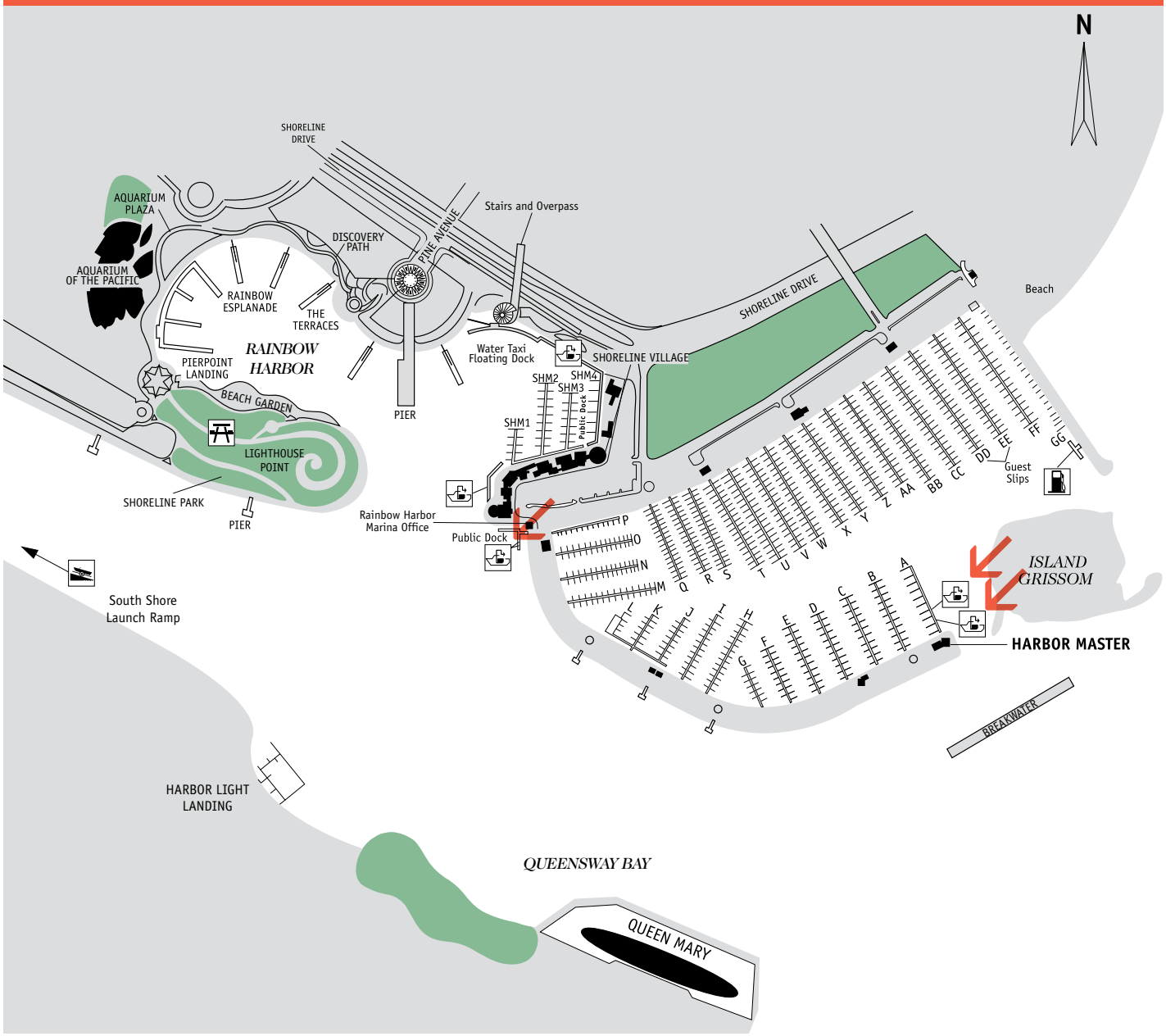
California Yacht Marina (CYM) Wilmington hangs an evaluation card on a public bulletin board after each monitoring event. This allows boaters to see exactly how the unit performed during the last monitoring event.

⟶ MONITORING DETAILS

FACILITY	STATUS	DESCRIPTION
CYM Wilmington	Non-operational Aug. 2014 to Feb. 2015 Non-operational Aug. 2016	Works well when operational
Notes	*Non-operational status from Aug. 2014 to Feb. 2015 was extensive due to a long wait time for parts. Since there are no other public sewage pumpouts in the Port of Los Angeles, boaters are encouraged to use landside facilities and keep the phone number of a mobile pumpout company on hand for emergencies. This facility also provides a dump station for boaters to empty port-a-potties.*	

*See page 10 for follow-up taken after each monitoring site visit.

LA — PORT OF LONG BEACH – SHORELINE



FACILITY	2016 USABILITY %	HISTORIC USABILITY %	PUMP TYPE
Shoreline Marina Office, A dock near	95	74	Peristaltic
Shoreline Marina Office, A dock far	80	81	Peristaltic
Shoreline Marina, public dock near	84	*97	Peristaltic
Shoreline Marina, public dock mid	94	*98	Peristaltic
Shoreline Marina, public dock far	72	*88	Peristaltic

*See Notes under Monitoring Details.

LA — PORT OF LONG BEACH – SHORELINE

⟶ SHOW CASE

Photo by Victoria Gambale

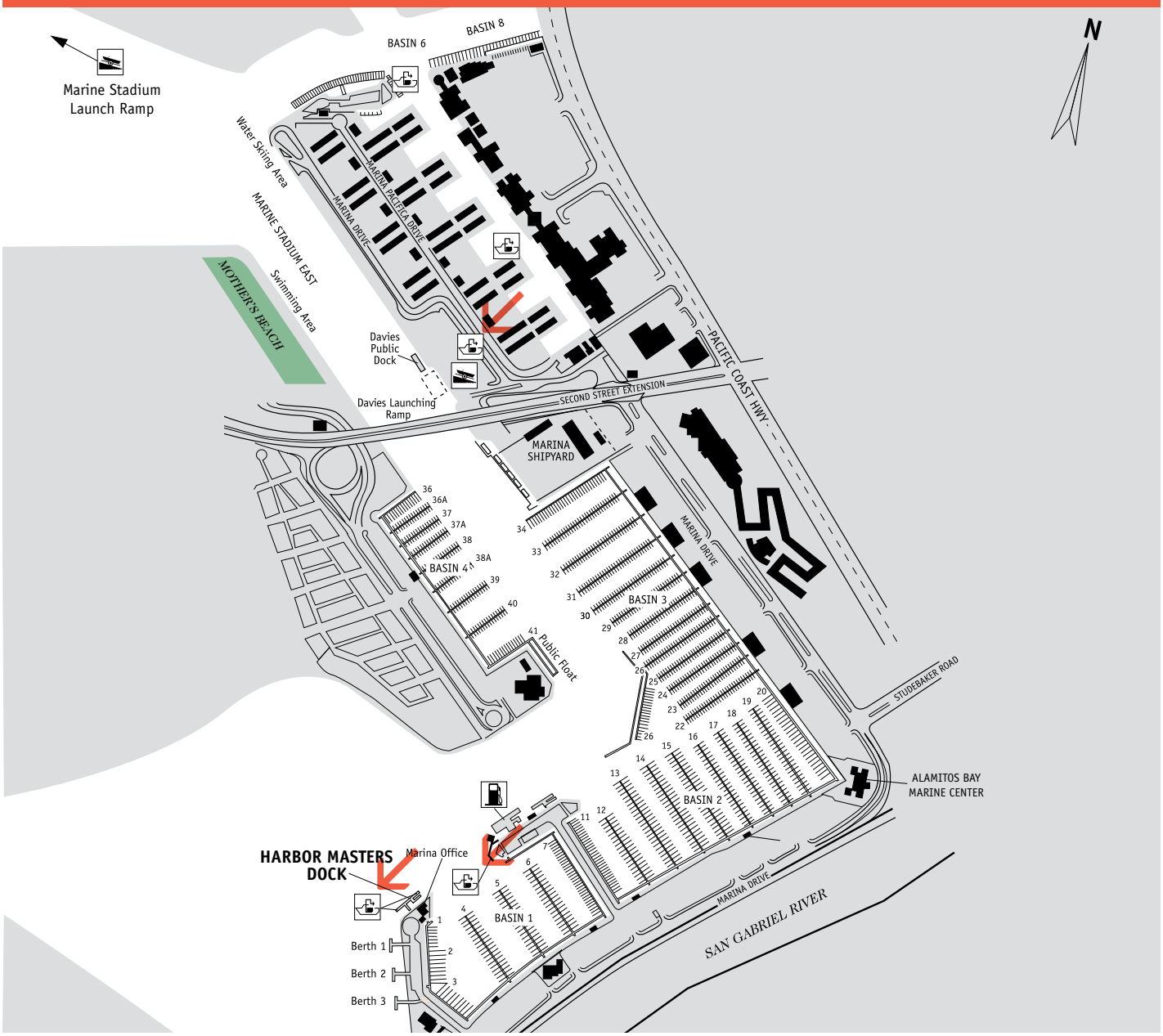
The Shoreline Public Dock had structural issues and the pumpouts historically performed very poorly. These problems have been solved with a newly constructed dock and installation of three new pumpouts. These units are now very reliable for the boating community.

⟶ MONITORING DETAILS

FACILITY	STATUS	DESCRIPTION
Shoreline Marina Office		
Near	Non-operational Feb. 2015	New unit
Far	Non-operational May 2014 , Nov. 2016	New unit
Shoreline Marina, public dock		
Near		New unit
Mid		New unit
Far	Non-operational Aug 2016	New unit
*Notes	*Historically, there were only two units on the public dock; due to structural issues with the dock, the units were often non-operational and the dock was often closed. In 2015, the dock was replaced and three new units were installed. The historic grades are based on three monitoring events of the new units since May 2015.*	

*See page 10 for follow-up taken after each monitoring site visit.

LA — PORT OF LONG BEACH – LOS ALAMITOS



FACILITY	2016 USABILITY %	HISTORICUS-ABILITY %	PUMP TYPE
Los Alamitos Fire Department, Marine Station	92	88	Peristaltic
Los Alamitos Davies Launch Ramp, near	44	56	Peristaltic
Los Alamitos Davies Launch Ramp, mid	41	49	Peristaltic
Los Alamitos Davies Launch Ramp, far	*43	58	Peristaltic
Los Alamitos Harbor Master Dock, near	79	86	Peristaltic
Los Alamitos Harbor Master Dock, far	77	87	Peristaltic

*See Notes under Monitoring Details.

LA — PORT OF LONG BEACH – LOS ALAMITOS

⟶ MONITORING DETAILS

FACILITY	STATUS	DESCRIPTION
Los Alamitos Fire Department, Marine Station		performs very well
Los Alamitos Davies Launch Ramp		
Near, Mid & Far	Non-operational Feb. 2014, May 2014, Aug. 2014, Feb. 2016, Aug. 2016, Nov. 2016 Non-operational Feb. 2015, Feb. 2016, Aug. 2016, Nov. 2016	
Mid	Non-operational Aug. 2015	
**Notes*	*These three units share one motor and pump. The remote service system has issues turning the landside motor on resulting in a non-operational status during four of the eight historical monitoring events and three of the four 2016 monitoring events. Management works to improve these units although they continue to perform poorly due to design.*	
Los Alamitos Harbor Master Dock		
Near	Non-operational May 2016	
Far		

*See page 10 for follow-up taken after each monitoring site visit.

ORANGE COUNTY

Clouds over Newport Harbor make for a picturesque scene. Photo by John Hollenbeck

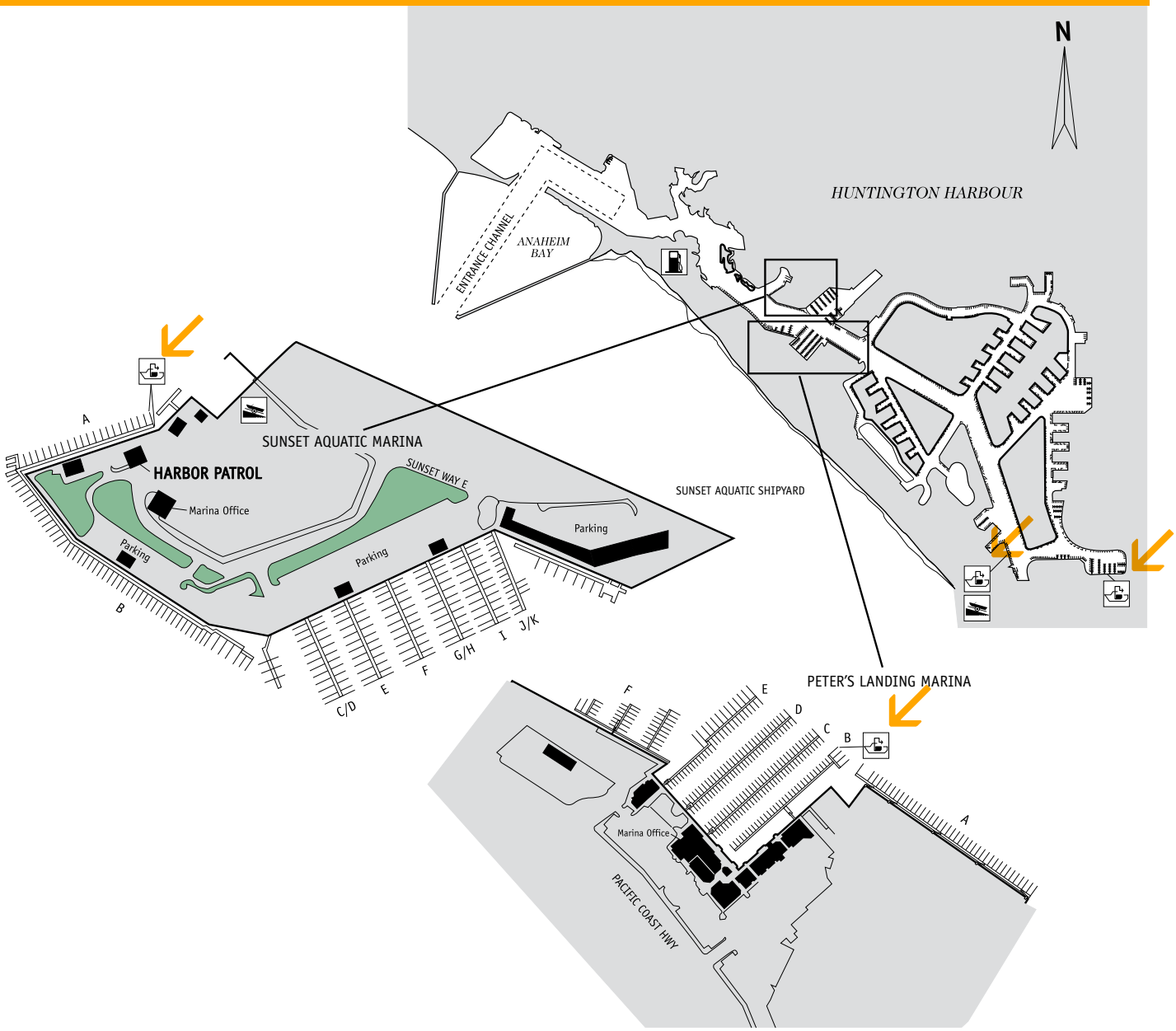
ORANGE COUNTY IS HOME TO THREE HARBORS

ORANGE — **HUNTINGTON HARBOUR**

ORANGE — **NEWPORT HARBOR**

ORANGE — **DANA POINT HARBOR**

ORANGE — HUNTINGTON HARBOUR



FACILITY	2016 USABILITY %	HISTORIC USABILITY %	PUMP TYPE
Peter's Landing Marina	83	*78	Peristaltic
Huntington Harbor Yacht Club, Fire Department	73	68	Diaphragm

*See Notes under Monitoring Details.

ORANGE — HUNTINGTON HARBOUR

⟶ SHOW CASE

Photo by Peter's Landing Marina

Adjacent to Peter's Landing Marina is a small piece of beach (approximately 1/3 acre). After discovering this land was not the property of the nearby condominiums, as Peter's Landing Marina was led to believe for over 15 years, they took action. With the help of the Bolsa Chica Land Trust, the formerly degraded beach and wetlands have been restored with native plants and is now a wonderful spot to watch the resident Great Blue Heron.

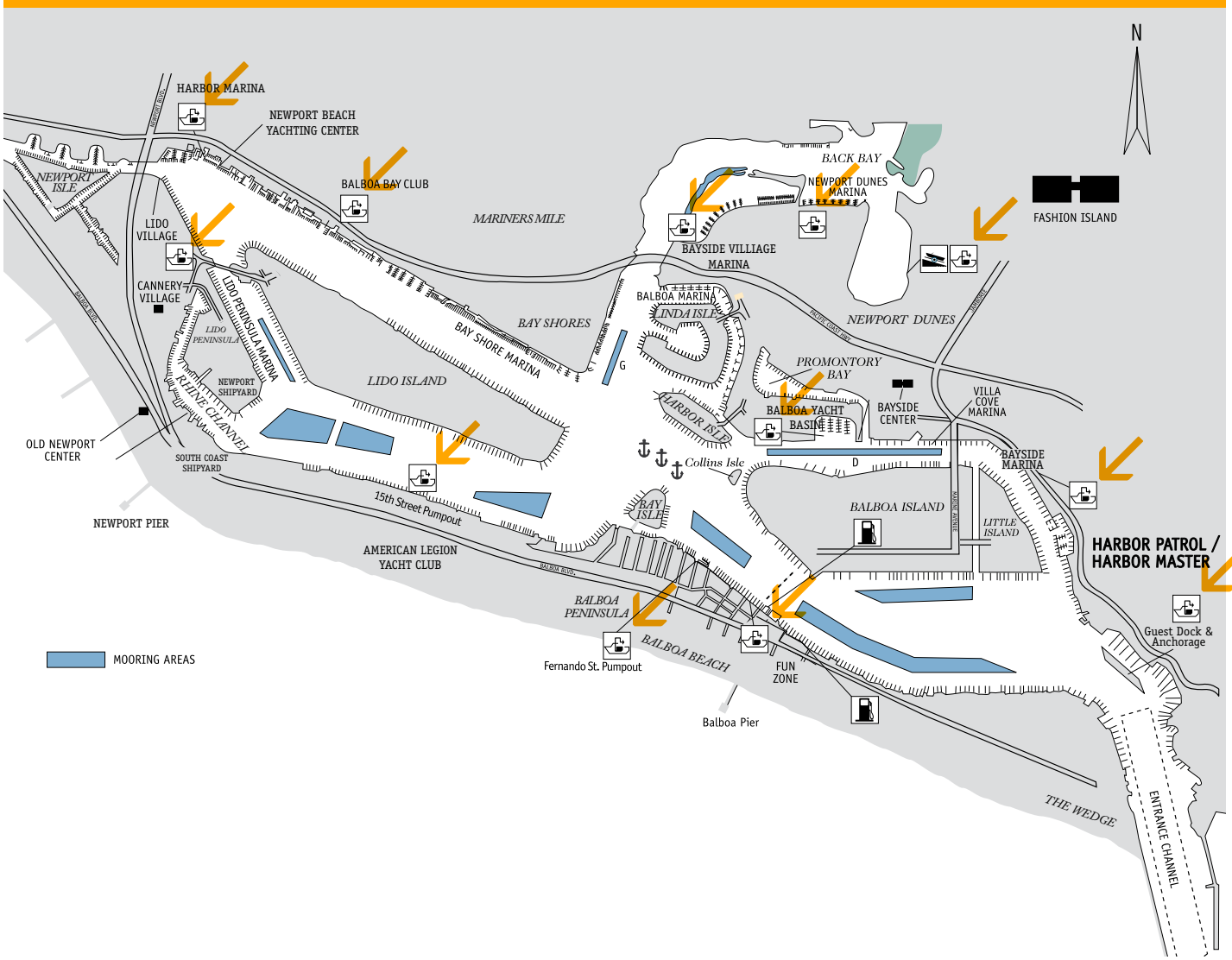
It is extremely important for all sewage pumpout units to be consistently operational, especially in Huntington Harbour which is a no discharge zone.

⟶ MONITORING DETAILS

FACILITY	STATUS	DESCRIPTION
Peter's Landing Marina		Performs well
**Notes*	*February 2014 monitoring does not include vacuum pressure data due to a faulty gauge.*	
Huntington Harbor Yacht Club	Non-operational Aug. 2014, Nov. 2014, Aug. 2016	

*See page 10 for follow-up taken after each monitoring site visit.

ORANGE — NEWPORT HARBOR



FACILITY	2016 USABILITY %	HISTORIC USABILITY %	PUMP TYPE
Lido Marina Village	48	73	Diaphragm
American Legion Yacht Club, near	82	64	Peristaltic
American Legion Yacht Club, far	75	82	Peristalticn
Balboa Fun Zone Marina	55	*87	Peristaltic
Fernando St. & Edgewater, public dock	71	*71	Peristaltic
Balboa Bay Club	81	96	Peristaltic
Bayside Village Marina	*86	*82	Peristaltic
Balboa Yacht Basin, E dock	88	77	Peristaltic
OC Harbor Patrol	84	*79	Peristaltic

*See Notes under Monitoring Details.

ORANGE — NEWPORT HARBOR

⟶ SHOW CASE

Photo by The Bay Foundation

Signs posted at each pumpout station show the locations of all the pumpouts in Newport Harbor. This allows a boater to easily find the closest pumpout unit in case any unit is down.

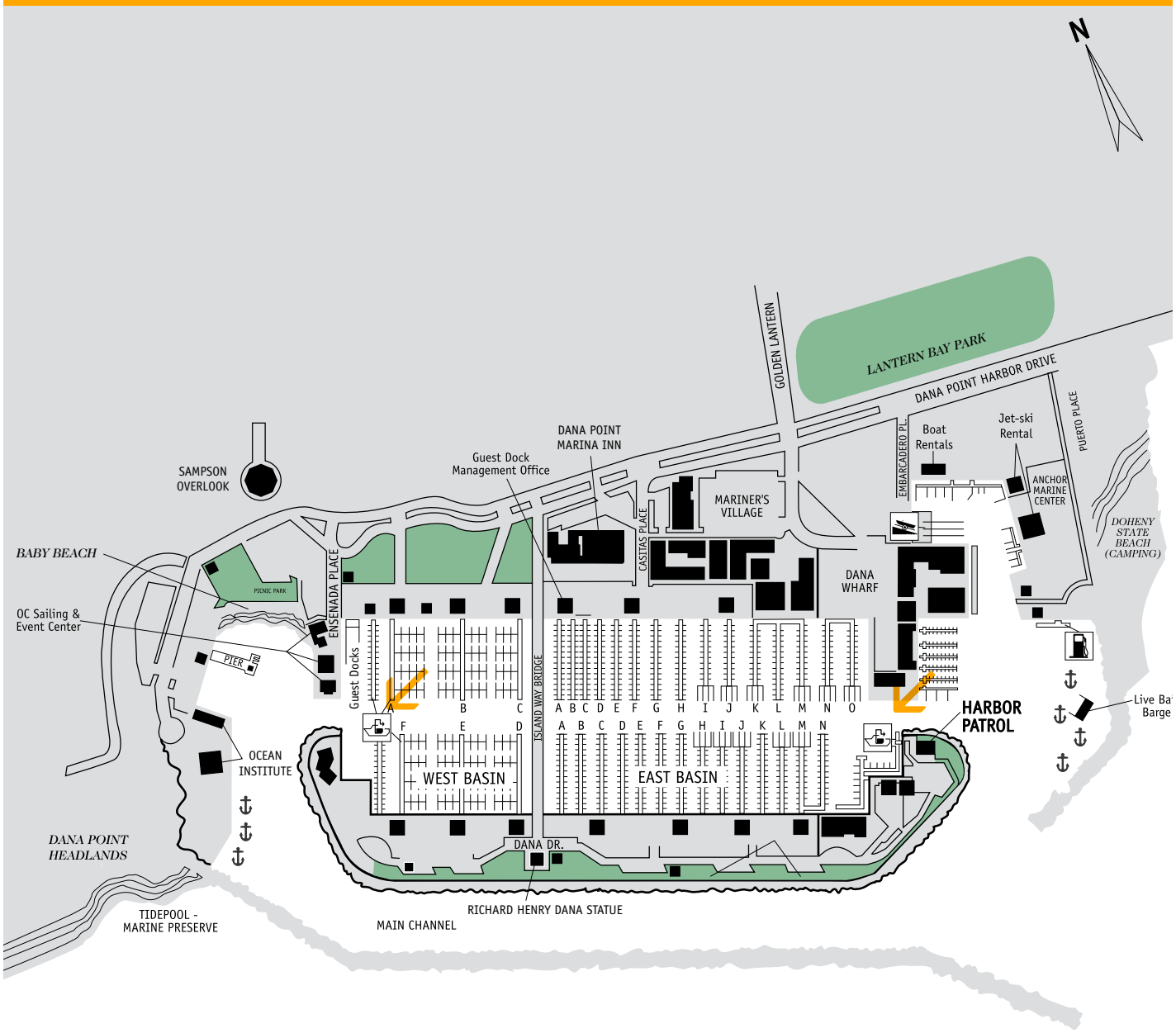
It is extremely important for all sewage pumpout units to be consistently operational, especially in Newport Harbor which is a no discharge zone.

⟶ MONITORING DETAILS

FACILITY	STATUS	DESCRIPTION
Lido Marina Village	Non-operational May 2015, Nov. 2016, Non-accessible May 2016	
**Notes*	*In May 2016, the unit was non-accessible due to construction. 2016 grade is based on three of the four monitoring events.*	
American Legion Yacht Club		
Near	Non-operational Aug. 2014, Nov. 2014	
Far	Non-operational May 2016	
Balboa Fun Zone	Non-accessible Nov. 2014, Non-operational Feb. 2016	
**Notes*	*Due to construction, historic grade is based on seven of eight monitoring events.*	
Fernando St.	Non-accessible Nov. 2014	Aug. 2014 slow time
**Notes*	*Due to construction, historic grade is based on seven of eight monitoring events.*	
Balboa Bay Club	Non-operational Nov. 2016	Usually performs excellently
Bayside Village	Non-operational Aug. 2014 Non-accessible Feb. 2016	Performs very well
**Notes*	*Due to construction, 2016 grade is based on three of the four monitoring events.*	
Balboa Yacht Basin	Non-operational Feb. 2015 (broken pipe)	Performs well
OC Harbor Patrol		Performs well
**Notes*	*Due to a faulty gauge, February 2014 monitoring does not include vacuum pressure data.*	

*See page 10 for follow-up taken after each monitoring site visit.

ORANGE — DANA POINT HARBOR



FACILITY	2016 USABILITY %	HISTORIC USABILITY %	PUMP TYPE
Sheriff's Harbor Patrol, pumpout dock	85	76	Peristaltic
Dana West Basin, F dock end tie	86	79	Peristaltic
OC Dana Point Harbor, Guest Docks end tie	90	83	Peristaltic
Dana West Basin, A dock side tie	83	90	Peristaltic

*See Notes under Monitoring Details.

ORANGE — DANA POINT HARBOR

⟶ SHOW CASE

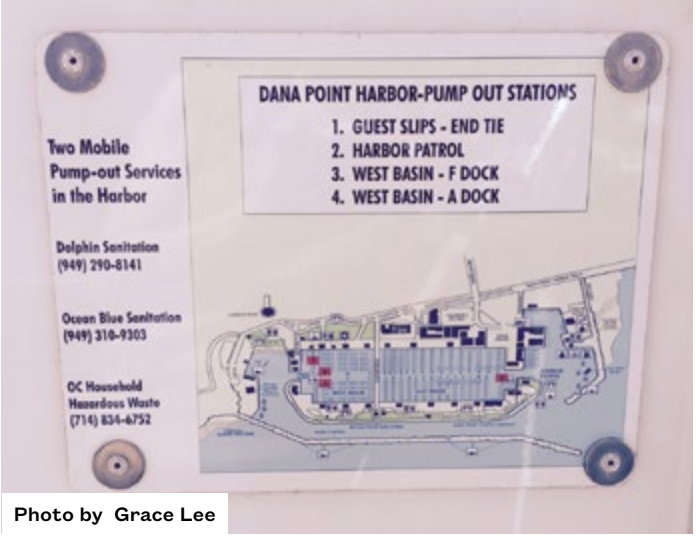


Photo by Grace Lee

Signage in Dana Point Harbor includes information for local mobile pumpout services, locations of adjacent stationary pumpouts, and a map of the harbor.

It is extremely important for all sewage pumpout units to be consistently operational, especially in Dana Point Harbor which is a no discharge zone.

⟶ MONITORING DETAILS

FACILITY	STATUS	DESCRIPTION
Sheriff's Harbor Patrol		May 2015 low pressure, slow time
Dana West Basin, F dock	Non-operational Feb. 2015	Usually performs very well
Notes	*In 2014, an unofficial out of order sign was posted although the unit worked. Frequent preventative maintenance reduces vandalism and boaters should always notify management when issues arise.*	
OC Guest Dock		Consistently performs well
Dana West Basin, A dock		Consistently performs well

*See page 10 for follow-up taken after each monitoring site visit.

SAN DIEGO COUNTY

A view of downtown San Diego. Photo by Victoria Gambale

SAN DIEGO COUNTY IS HOME TO THREE HARBORS

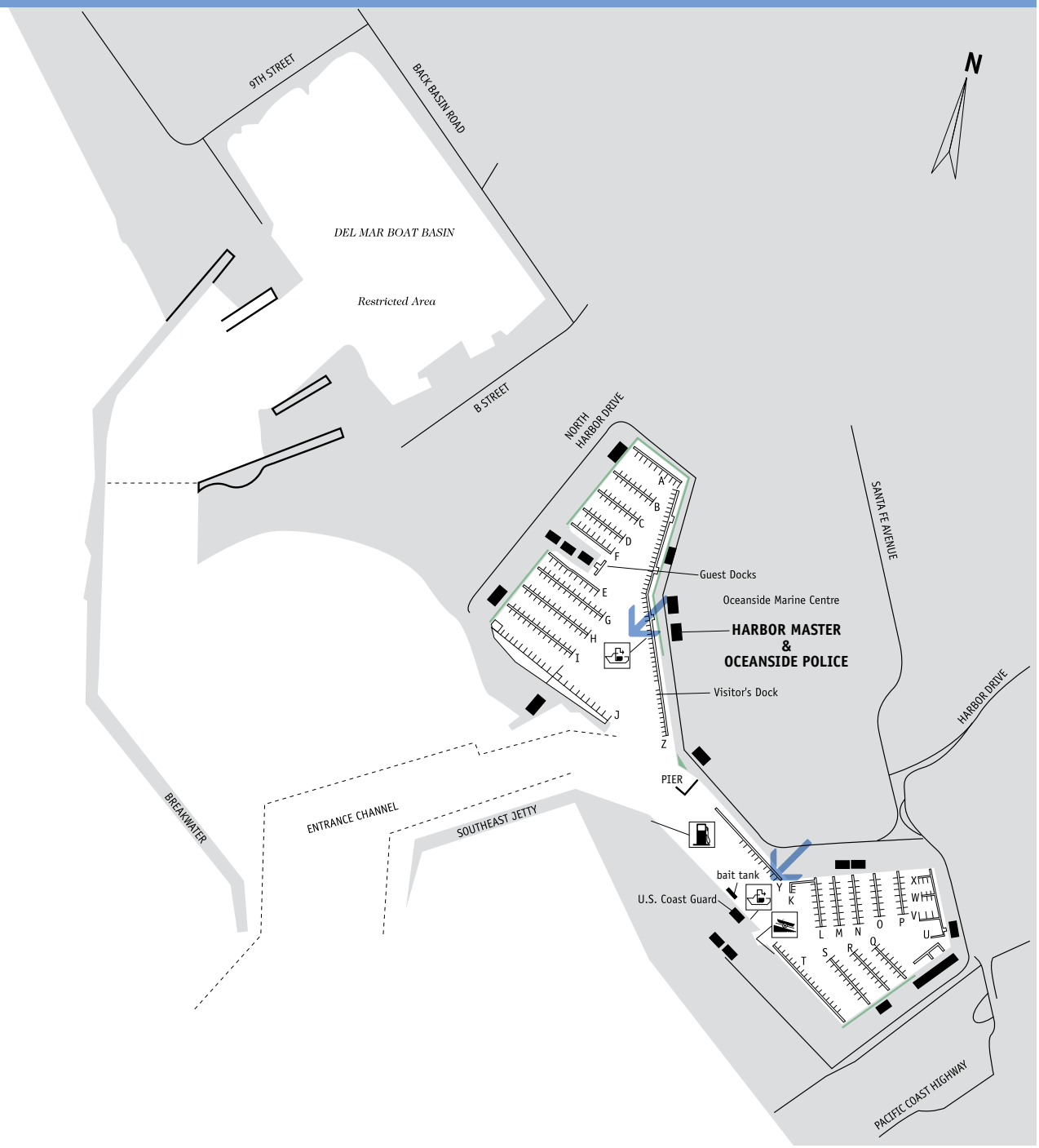
SAN DIEGO — **OCEANSIDE HARBOR**

SAN DIEGO — **MISSION BAY**

SAN DIEGO — **SAN DIEGO BAY**/ Shelter and Harbor Islands

SAN DIEGO — **SAN DIEGO BAY**/ Glorietta Bay & South San Diego Bay

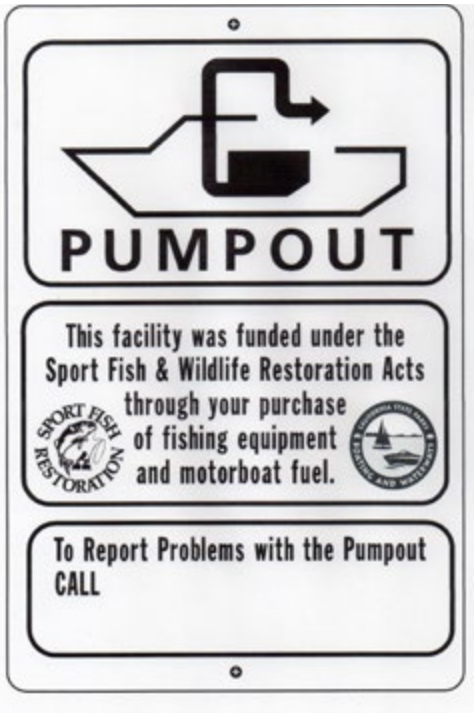
SAN DIEGO — OCEANSIDE HARBOR



FACILITY	2016 USABILITY %	HISTORIC USABILITY %	PUMP TYPE
Department of Harbor & Beaches	95	91	Peristaltic
US Coast Guard Auxiliary, near	90	-	Peristaltic
US Coast Guard Auxiliary, far	94	93	Peristaltic

SAN DIEGO — OCEANSIDE HARBOR

⟶ SHOW CASE



Oceanside Harbor is the newest recipient of a CVA grant. They recently received a new pumpout unit on the dock next to the launch ramp and the US Coast Guard Auxiliary.

It is extremely important for all sewage pumpout units to be consistently operational, especially in Oceanside Harbor which is a no discharge zone.

⟶ MONITORING DETAILS

FACILITY	STATUS	DESCRIPTION
Department of Harbor & Beaches		Consistently performs excellently
US Coast Guard Auxiliary		
Near		Consistently performs excellently
Far		Consistently performs excellently
Notes	*Historically there was one unit at this dock, a second 'near' unit was added in early 2016. Therefore no historic grade is available for the 'near' unit.*	

*See page 10 for follow-up taken after each monitoring site visit.

SAN DIEGO — MISSION BAY

FACILITY	2016 USABILITY %	HISTORIC USABILITY %	PUMP TYPE
Mission Bay Park Headquarters, left	92	93	Peristaltic
Mission Bay Park Headquarters, right	97	93	Peristaltic
Hyatt Regency, Mission Bay	93	91	Peristaltic

SAN DIEGO — MISSION BAY

⟶ SHOW CASE

Photo by © Lee Louis

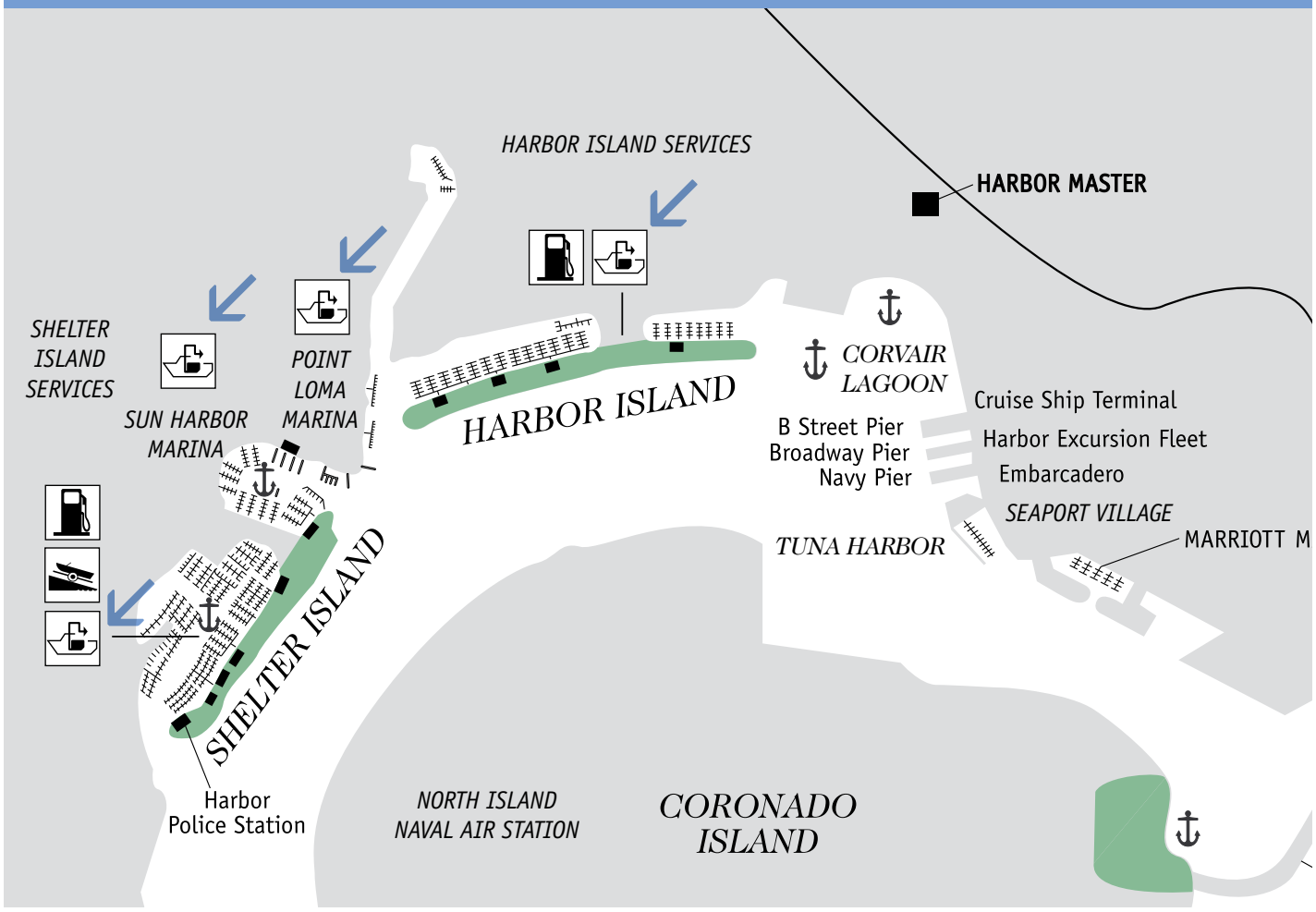
It is extremely important for all pumpout units to be consistently operational, especially in Mission Bay where the area is commonly used for public recreation. In Mission Bay, the sewage pumpout units work very well and consistently, with timely repairs when needed. Mission Bay is a no discharge zone.

⟶ MONITORING DETAILS

FACILITY	STATUS	DESCRIPTION
Mission Bay Park Headquarters		
Left		Consistently performs excellently
Right		Consistently performs excellently
Notes	*These two units share one motor and pump.*	
Hyatt Regency		Consistently performs excellently

*See page 10 for follow-up taken after each monitoring site visit.

SAN DIEGO — SAN DIEGO BAY/ Shelter and Harbor Islands



FACILITY	2016 USABILITY %	HISTORIC USABILITY %	PUMP TYPE
Shelter Island Harbor Police Dock, near	81	67	Peristaltic
Shelter Island Harbor Police Dock, far	78	73	Peristaltic
Shelter Island Public Dock, near	87	82	Peristaltic
Shelter Island Public Dock, far	85	78	Peristaltic
Kona Kai Marina, near	73	68	Diaphragm
Kona Kai Marina, far	85	79	Diaphragm
Pearson's Marine Fuel	56	70	Diaphragm
Sun Harbor Marina, right/ public	91	83	Peristaltic
Cabrillo Isle Marina CVA, H dock	84	77	Peristaltic
Laurel St & Harbor Dr./ airport	91	81	Peristaltic

*See Notes under Monitoring Details.

SAN DIEGO — SAN DIEGO BAY/ Shelter and Harbor Islands

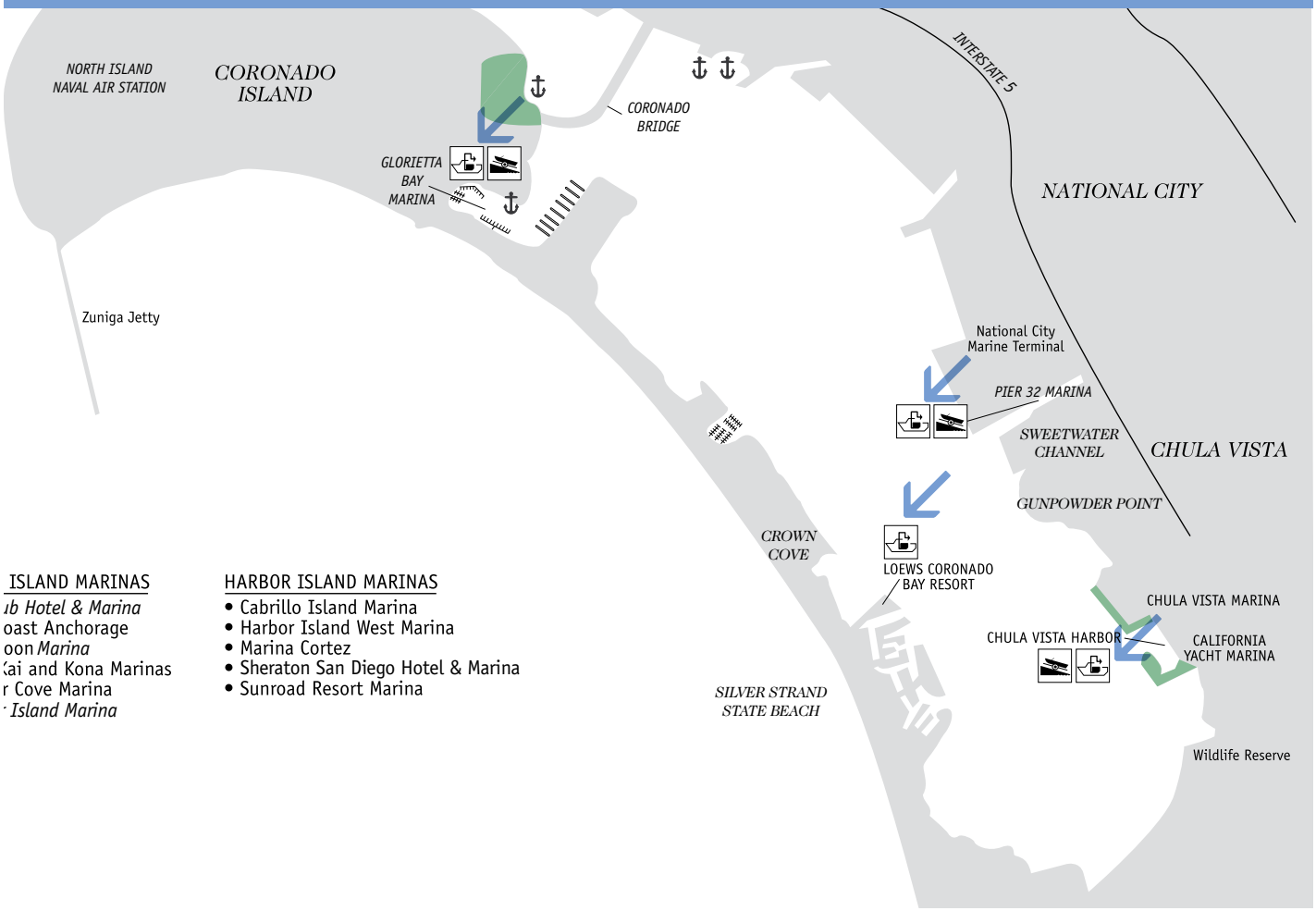
It is extremely important for all sewage pumpout units to be consistently operational, especially in San Diego Bay which is a no discharge zone.

⟶ MONITORING DETAILS

FACILITY	STATUS	DESCRIPTION
Shelter Island Harbor Police Dock		
Near	Non-operational Feb. 2015	Performs well
Far		Performs well
Notes	*Non-operational due to a faulty ball valve, which did not rotate.*	
Shelter Island Public Dock (near & far)		Perform fairly
Kona Kai Marina		
Near	Non-operational May 2015, Aug. 2015, Feb. 2016	
Far		Usually performs fairly May 2015 slow time
**Notes*	*The near unit is part of the in-slip pumpout system for Kona Kai Marina tenants and often does not have a nozzle or a hose connected to the pedestal. This results in many instances of non-operation status.*	
Pearson's Marine Fuel	Non-operational Aug. 2016, Nov. 2016	Performs poorly, low pressure, slow time
Sun Harbor Marina		Consistently performs very well
Cabrillo Isle Marina		Performs well
Laurel St. & Harbor Dr.		Consistently performs very well

*See page 10 for follow-up taken after each monitoring site visit.

SAN DIEGO — **SAN DIEGO BAY**/ Glorietta Bay & South San Diego



ISLAND MARINAS

ıb Hotel & Marina
oast Anchorage
oon *Marina*
ʿai and Kona Marinas
r Cove Marina
· *Island Marina*

HARBOR ISLAND MARINAS

- Cabrillo Island Marina
- Harbor Island West Marina
- Marina Cortez
- Sheraton San Diego Hotel & Marina
- Sunroad Resort Marina

FACILITY	2016 USABILITY %	HISTORIC USABILITY %	PUMP TYPE
Glorietta Bay Marina, A dock	81	76	Peristaltic
Glorietta Bay Marina, B dock left	84	81	Peristaltic
Glorietta Bay Marina, B dock right	85	74	Peristaltic
Chula Vista Marina, A dock	89	81	Peristaltic
Chula Vista Launch Ramp	91	83	Peristaltic
Pepper Park Launch Ramp	93	*93	Peristaltic

*See Notes under Monitoring Details.

⟶ SHOW CASE

Photo by Victoria Gambale

Self-monitoring of sewage pumpout equipment is essential to ensure proper, consistent operation. There are two instances of self-monitoring that are exemplary, in San Diego. Francisco Alvarez, lead plumber for the City of San Diego, trains his staff on how to properly maintain and monitor equipment. He makes sure his staff knows to check for common issues like air leaks, cracks, wear, and if the ball valve is easy to turn. Sun Harbor Marina Manager, Kathy OBrien, inspects pumpout equipment every day and makes sure Sun Harbor tenants know how to properly use the pumpouts.

It is extremely important for all sewage pumpout units to be consistently operational, especially in San Diego Bay which is a no discharge zone.

⟶ MONITORING DETAILS

FACILITY	STATUS	DESCRIPTION
Glorietta Bay Marina (A dock, B dock left & right)		Performs fairly
**Notes*	*These three units share one motor and pump. Boaters should ensure the other unit's ball valves are closed for best operation. Due to the distance between the pump and hose, boaters should turn the unit on and wait 3 to 4 minutes for pressure to build before pumping out.*	
Chula Vista Marina		Performs very well
Chula Vista Launch Ramp	Non-operational May 2014	Consistently performs well
Pepper Park Launch Ramp	Non-accessible Nov. 2013 - May 2015	Performs excellently
**Notes*	*Due to construction, historic grade is based on two of eight monitoring events.*	

*See page 10 for follow-up taken after each monitoring site visit.

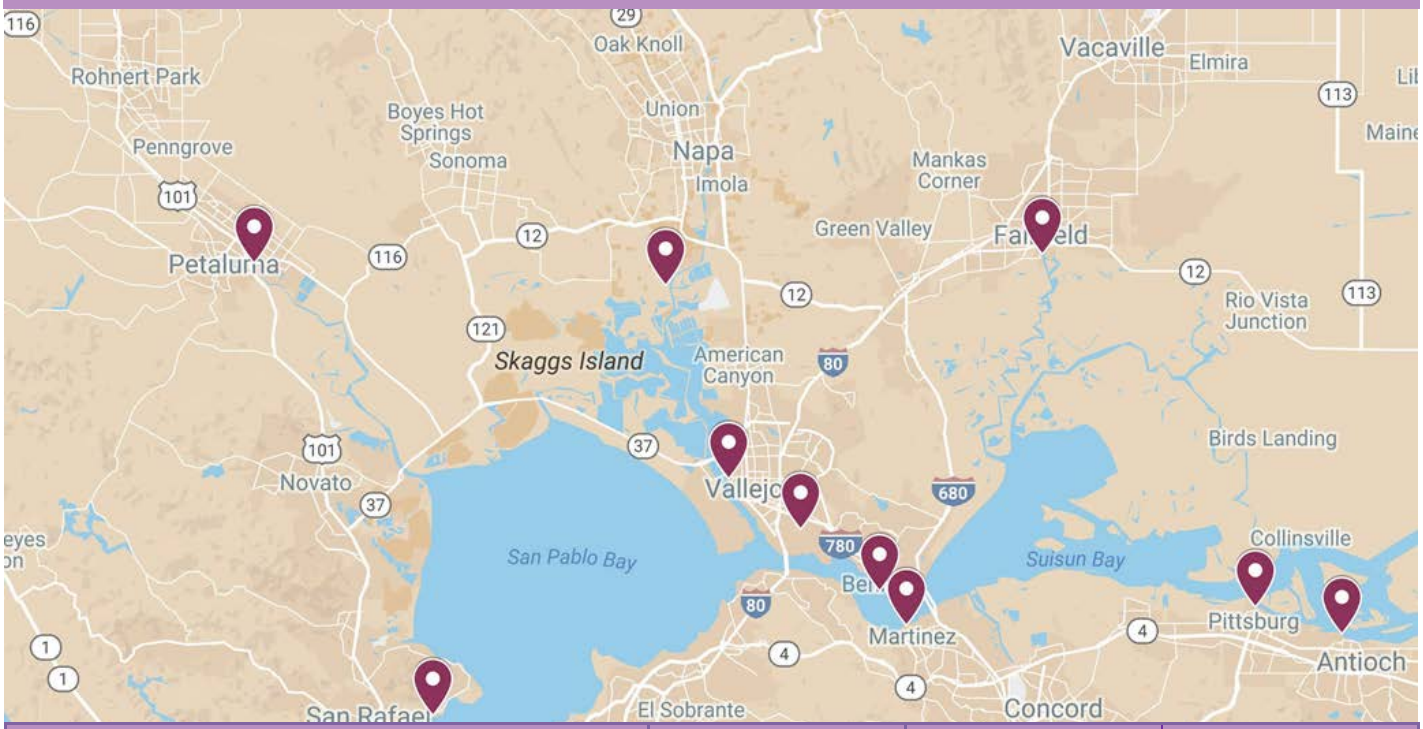
San Francisco Bay – North Bay

Angel Island's Ayala Cove is a hidden getaway in the North Bay for boaters. Photo by James Muller

SAN FRANCSICO BAY'S NORTHERN REGION HOUSES TEN MARINAS

Antioch Marina
Pittsburg Marina
Martinez Marina
Loch Lomond Marina
Napa Valley Marina
Benicia Marina
Glen Cove Marina
Suisun City Marina
Vallejo Municipal Marina
Petaluma Marina

San Francisco Bay – North Bay



FACILITY	2016 USABILITY %	HISTORIC USABILITY %	PUMP TYPE
Antioch – Fuel Dock	76	76	Vacuum
Antioch – Guest Dock	39	56	Vacuum
Pittsburg – Fuel Dock (north)	82	84	Peristaltic
Pittsburg – Fuel Dock (south)	83	87	Peristaltic
Martinez	81	91	Peristaltic
Loch Lomond – Fuel Dock (north)	58	68	Peristaltic
Loch Lomond – Fuel Dock (south)	66	79	Peristaltic
Napa Valley	89	91	Diaphragm
Benicia	85	88	Peristaltic
Glen Cove	93	87	Peristaltic
Suisun City	75	81	Peristaltic
Vallejo – J Dock	94	93	Peristaltic
Vallejo – Fuel Dock	96	93	Peristaltic

San Francisco Bay – North Bay

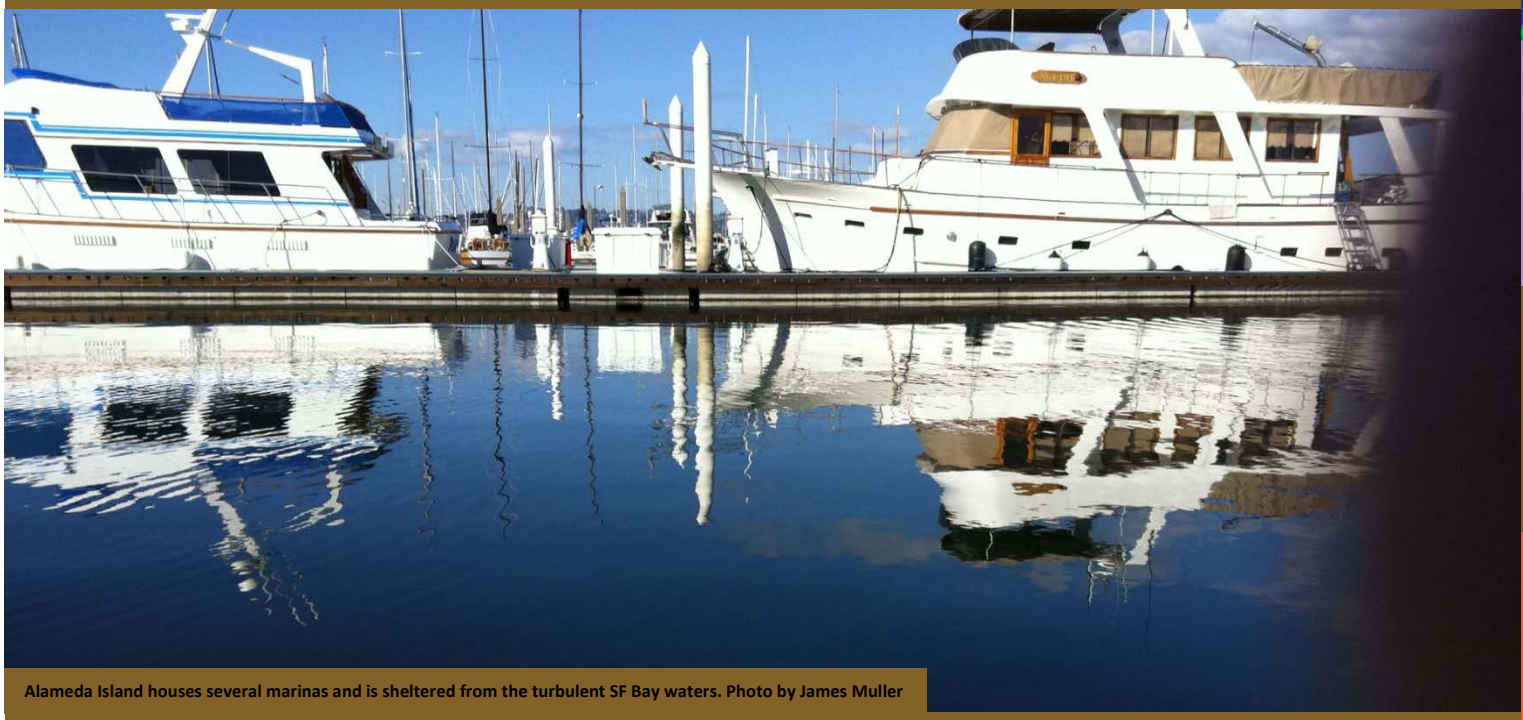
FACILITY	2016 USABILITY %	HISTORIC USABILITY %	PUMP TYPE
Petaluma	88	76	Diaphragm

→ MONITORING DETAILS

FACILITY	STATUS	DESCRIPTION
Antioch – Fuel Dock	Non-Operational Jan 2015	Reliable pumpout that occasionally pumps slow
Antioch – Guest Dock	Non-Operational Mar 2014	Unit consistently has no power
Pittsburg – Fuel Dock (north)		Unit works well and is consistently functional
Pittsburg – Fuel Dock (south)		Unit works well and is consistently functional
Martinez		Unit works well and is consistently functional
Loch Lomond – Fuel Dock (north)	Non-Operational Mar 2014	Unit consistently works but is slow
***Notes**	Unit shares nozzle with the south pump. Nozzle may be held by marina office.	
Loch Lomond – Fuel Dock (south)		Unit consistently works but is slow
***Notes**	Unit shares nozzle with the south pump. Nozzle may be held by marina office.	
Napa Valley		Unit works well and is consistently functional
Benicia		Unit works well and is consistently functional
Glen Cove		Unit works well and is consistently functional
Suisun City		Unit works well and is consistently functional
Vallejo – J Dock		Unit works well and is consistently functional
Vallejo – Fuel Dock		Unit works well and is consistently functional
Petaluma		Unit consistently works but is slow

*See page 10 for follow-up taken after each monitoring site visit.

San Francisco Bay – East Central Bay

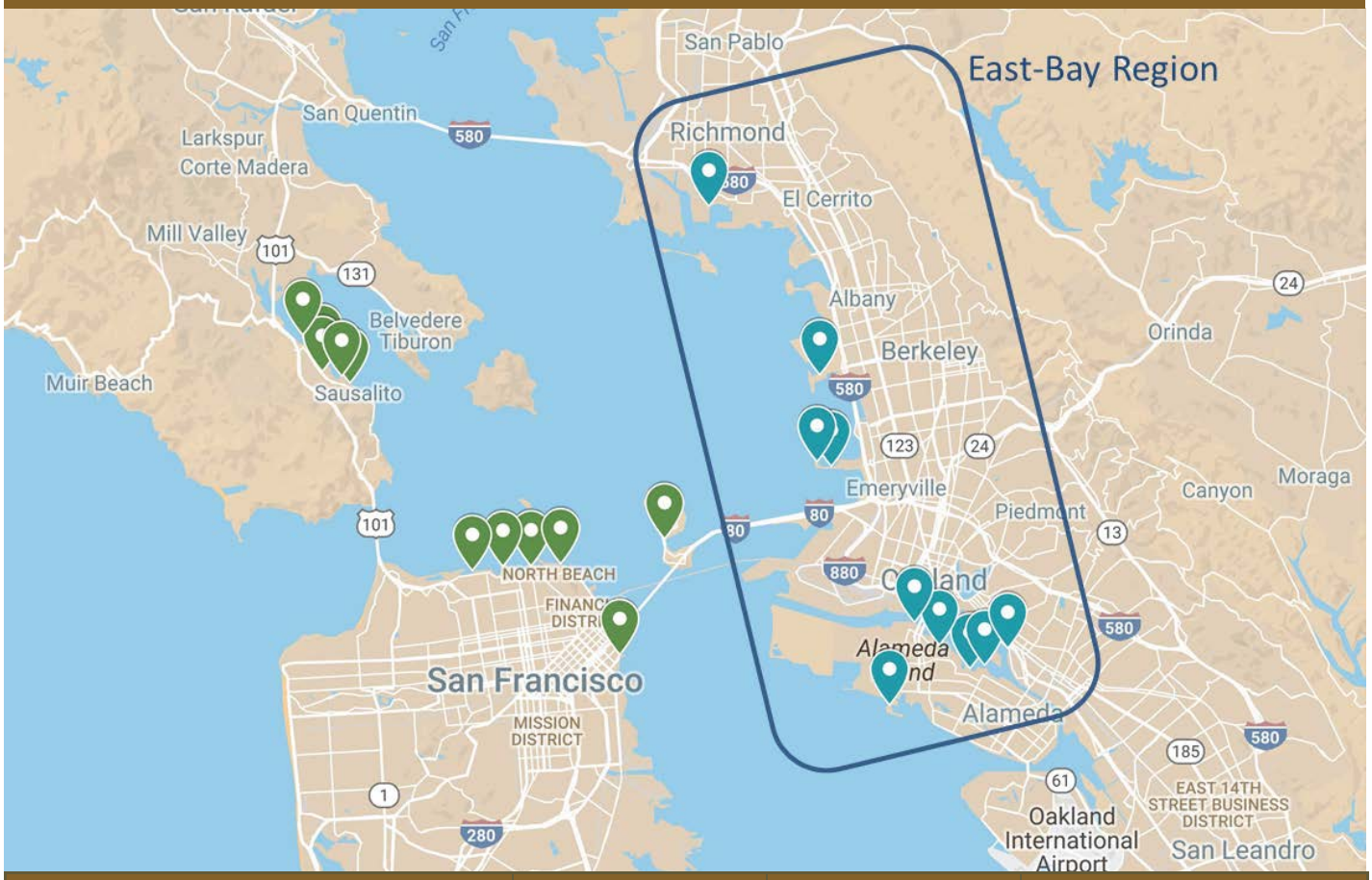


Alameda Island houses several marinas and is sheltered from the turbulent SF Bay waters. Photo by James Muller

SAN FRANCSICO BAY'S EAST CENTRAL REGION HOUSES TEN MARINAS

Bellena Isle Marina
Berkeley Marina
Emery Cove Yacht Harbor
Emeryville Marina
Fortman Marina
Grand Marina
Marina Village Yacht Harbor
Mariner Square Marina
Oakland Marina
Marina Bay Yacht Harbor

San Francisco Bay – East Central



FACILITY	2016 USABILITY %	HISTORIC USABILITY %	PUMP TYPE
Bellena Isle Marina	76	84	Diaphragm
Berkeley Marina – G Dock	89	86	Peristaltic
Berkeley Marina – I Dock	61	70	Peristaltic
Berkeley Marina – C Dock (east)	87	91	Peristaltic
Berkeley Marina – C Dock (west)	93	84	Peristaltic
Emery Cove Yacht Harbor – A Dock	89	93	Peristaltic
Emery Cove Yacht Harbor – S Dock	89	92	Peristaltic
Emeryville Marina	73	68	Peristaltic
Fortman Marina	24	46	Vacuum
Grand Marina	83	90	Peristaltic
Marina Village Yacht Harbor – Gate 8	83	85	Peristaltic

San Francisco Bay – East Central

FACILITY	2016 USABILITY %	HISTORIC USABILITY %	PUMP TYPE
Marina Village Yacht Harbor – Gate 10	72	43	Peristaltic
Mariner Square Marina	58	63	Vacuum
Oakland Marina – Jack London Square	85	N/A	Peristaltic
Oakland Marina – Union Point	75	N/A	Peristaltic
Marina Bay Yacht Harbor – D Dock	91	87	Peristaltic
Marina Bay Yacht Harbor – G Dock	92	83	Peristaltic

→ SHOW CASE

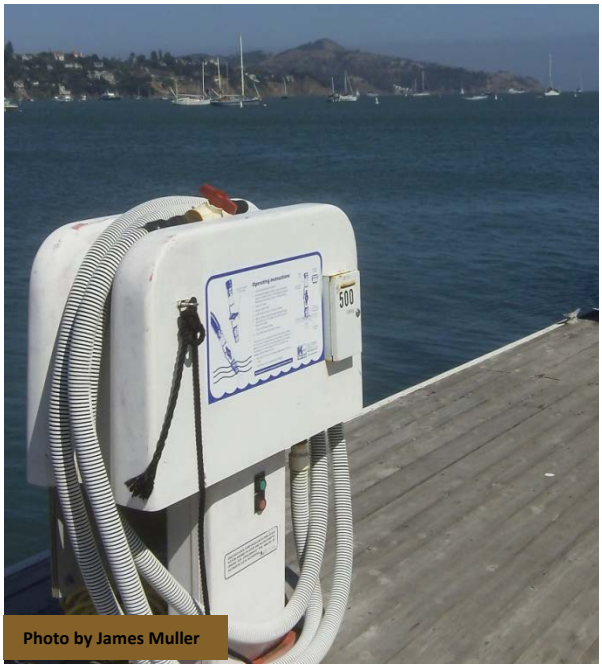


Photo by James Muller

Galilee Harbor

This marina, found in Richardson Bay, has depended on its live aboards to watch and report any issues with their pumpout. Occasionally, boaters close to the unit will even assist folks if they are having issues! This is a great home grown program that keeps their old diaphragm up and running! It is extremely important for pumpouts in this part of San Francisco Bay to function properly as Richardson Bay is a No Discharge Zone.

San Francisco Bay – East Central

→ MONITORING DETAILS

FACILITY	STATUS	DESCRIPTION
Bellena Isle Marina		Old unit consistently works but is slow
Berkeley Marina – G Dock		Unit works well and is consistently functional
Berkeley Marina – I Dock	Non-Operational Nov 2016	Unit is relatively slow
Berkeley Marina – C Dock (east)		Unit works well and is consistently functional
***Notes**	Both units on C Dock run from the same motor	
Berkeley Marina – C Dock (west)		Unit works well and is consistently functional
***Notes**	Both units on C Dock run from the same motor	
Emery Cove Yacht Harbor – A Dock		Unit works well and is consistently functional
Emery Cove Yacht Harbor – S Dock		Unit works well and is consistently functional
Emeryville Marina	Non-Operational Jun. 2015	Unit is occasionally down but has fair speed and vacuum
Fortman Marina	Non-Operational Mar, Jun 2014; Mar, Nov 2015; Mar, May, Dec 2016	Very old vacuum unit and is difficult to operate
***Notes**	Slated to be replaced in 2017	
Grand Marina	Non-Operational Jun, Sep 2014; Jan 2015	Unit performs well
***Notes**	Dock was replaced in 2014. Historic usability percentage calculated using only 5 surveys.	
Marina Village Yacht Harbor – Gate 8		Unit works well and is consistently functional
Marina Village Yacht Harbor – Gate 10	Non-Operational Sep 2014; Jan, Mar, Jun, Sep, Nov 2015; Mar 2016	New unit works very well
***Notes**	Unit was down from mid 2014 to early 2016	
Mariner Square Marina		Unit has slow pumpout times
***Notes**	Unit is occasionally be used by adjacent commercial facility	
Oakland Marina – Jack London Square		Unit works well and is consistently functional

San Francisco Bay – East Central

FACILITY	STATUS	DESCRIPTION
Oakland Marina – Union Point		Unit often vandalized or misused
***Notes**	Pumpout was down one quarter due to damaged parts	
Marina Bay Yacht Harbor – D Dock		Unit works well and is consistently functional
Marina Bay Yacht Harbor – G Dock	Non-Operational Feb 2016	Unit works well and is consistently functional
***Notes**	Dock was being repaired for the first survey of 2016. Current usability percentage uses only last 3 surveys of 2016	

*See page 10 for follow-up taken after each monitoring site visit.

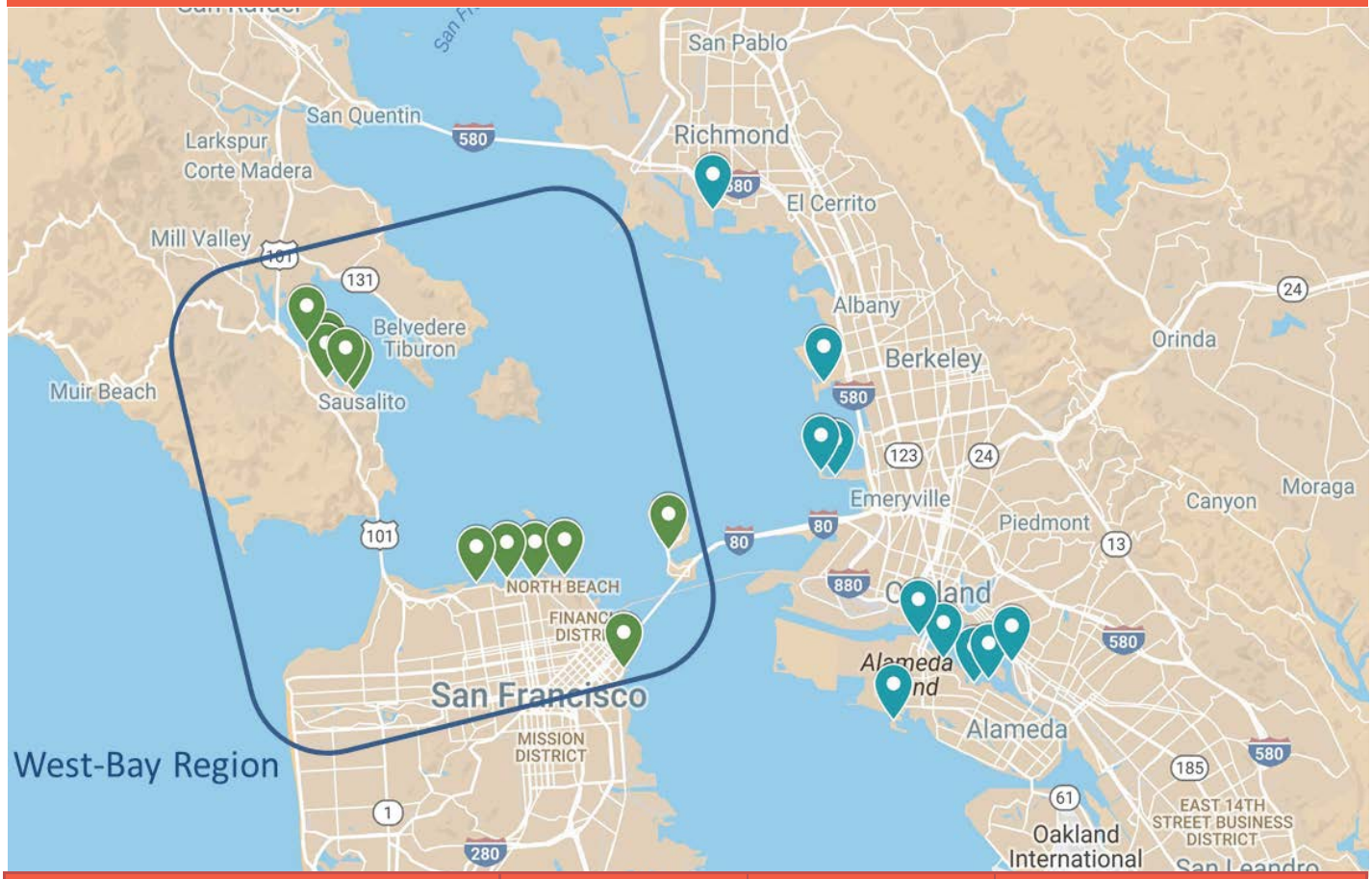
San Francisco Bay - West Central Bay

Richardson Bay hosts a robust boating community as well as a thriving wildlife scene. Photo by James Muller

SAN FRANCSICO BAY'S WEST CENTRAL REGION HOUSES ELEVEN MARINAS

Clipper Yacht Harbor
Galilee Harbor
Marina Plaza Harbor
Richardson Bay Marina
Schoonmaker Point Marina
Fisherman's Wharf
Pier 39 Marina
San Francisco Marina – Gashouse Cove
San Francisco Marina – West Harbor
South Beach Yacht Harbor
Treasure Island Marina

San Francisco Bay - West Central Bay



FACILITY	2016 USABILITY %	HISTORIC USABILITY %	PUMP TYPE
Clipper Yacht Harbor	74	90	Peristaltic
Galilee Harbor	79	83	Diaphragm
Marina Plaza Harbor	41	55	Peristaltic
Richardson Bay Marina	93	94	Peristaltic
Schoonmaker Point Marina	89	92	Peristaltic
Fisherman's Wharf	17	55	Peristaltic
Pier 39 Marina	82	86	Peristaltic
San Francisco Marina – Gashouse Cove	78	58	Peristaltic
San Francisco Marina – West Harbor	89	90	Peristaltic
South Beach Yacht Harbor – End of South Guest Dock	89	66	Peristaltic
Treasure Island Marina	91	91	Peristaltic

San Francisco Bay - West Central Bay

→ SHOW CASE

Photo by Adrien Baudrimont

San Francisco Marina - West Harbor
A few feet from the Pumpout station, SF Marina installed a fishing line recycle bin that looks like a periscope to prevent even more waste to enter the Bay. This is one of three in this marina put in place by the CA Division of Boating and Waterway's Fishing Line Program. This fishing line is sent off to be recycled and is kept out of landfill.

→ MONITORING DETAILS

FACILITY	STATUS	DESCRIPTION
Clipper Yacht Harbor		Unit works well and is consistently functional
Galilee Harbor		Unit works well and is consistently functional
Marina Plaza Harbor		Unit works well and is consistently functional
Richardson Bay Marina		Unit works well and is consistently functional
Schoonmaker Point Marina		Unit works well and is consistently functional
Fisherman's Wharf	Non-Operational June 2014; Sep, Nov 2015; Jan, May, Aug, Nov 2016	Pumpout has been down since 2015
***Notes**	Pumpout has been down due to maintenance and signage replacement.	
Pier 39 Marina	Non-Operational Nov 2015	
San Francisco Marina – Gashouse Cove	Non-Operational Sep, Nov 2015; Aug, Nov 2016	Pumpout is regularly down and missing parts
San Francisco Marina – West Harbor		Unit works well and is consistently functional
South Beach Yacht Harbor (End of South Guest Dock)	Non-Operational Nov 2014	Unit works well and is consistently functional
Treasure Island Marina		Unit works well and is consistently functional

*See page 10 for follow-up taken after each monitoring site visit.

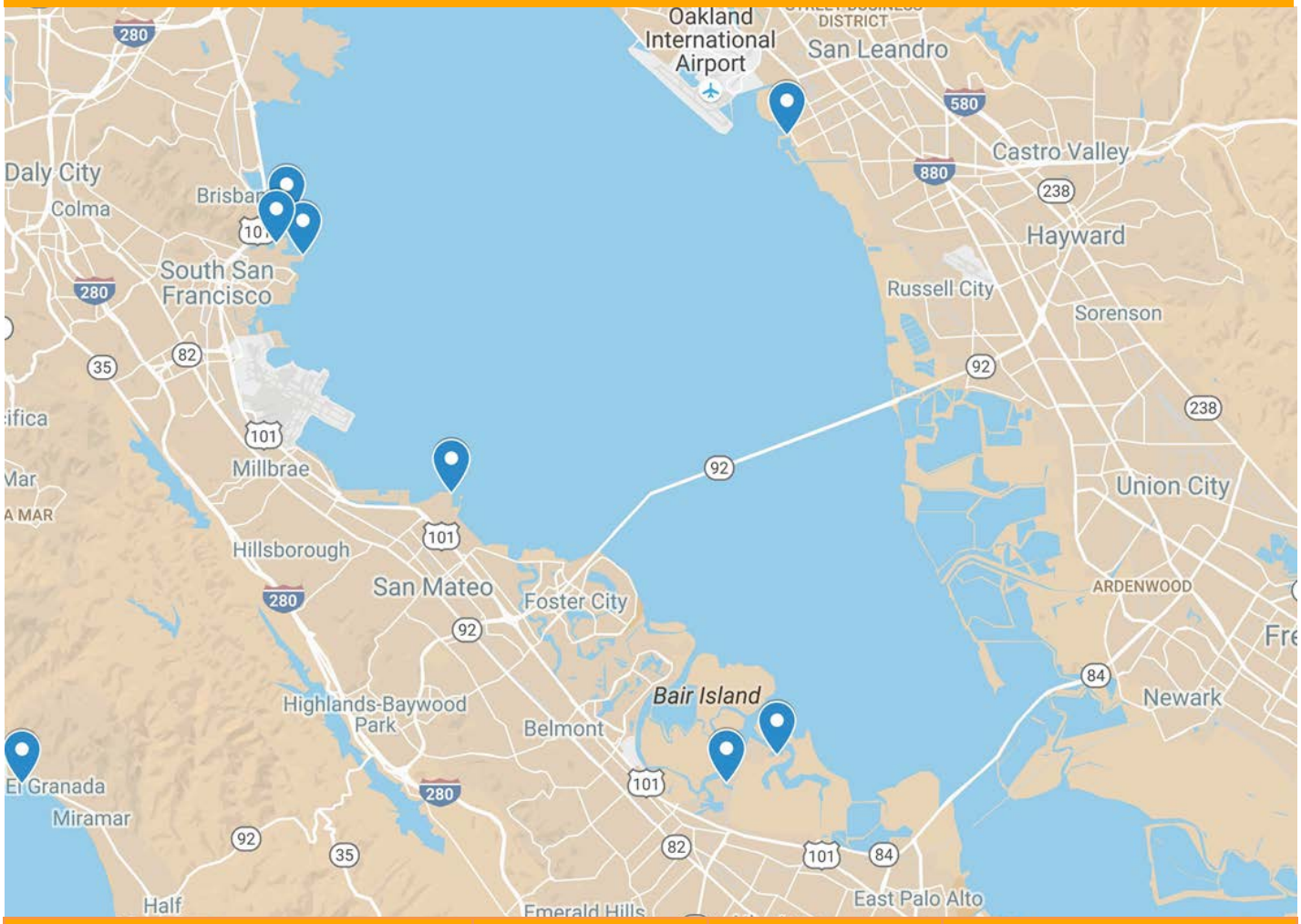
San Francisco Bay – South Bay

West Point Harbor is the newest marina in the San Francisco Bay! Photo by James Muller

SAN FRANCSICO BAY'S SOUTH REGION HOUSES ELEVEN MARINAS

Brisbane Marina
Oyster Cove Marina
Oyster Point Marina
Coyote Point Marina
Pillar Point Marina
West Point Harbor
Port of Redwood City
San Leandro Marina

San Francisco Bay – South Bay



FACILITY	2016 USABILITY %	HISTORIC USABILITY %	PUMP TYPE
Brisbane Marina	78	93	Peristaltic
Oyster Cove Marina	73	87	Peristaltic
Oyster Point Marina	80	77	Peristaltic
Coyote Point Marina	92	96	Peristaltic
Pillar Point Marina	91	94	Peristaltic
West Point Harbor	90	96	Peristaltic
Port of Redwood City	92	89	Peristaltic
San Leandro Marina	80	23	Peristaltic

San Francisco Bay – South Bay

→ SHOW CASE

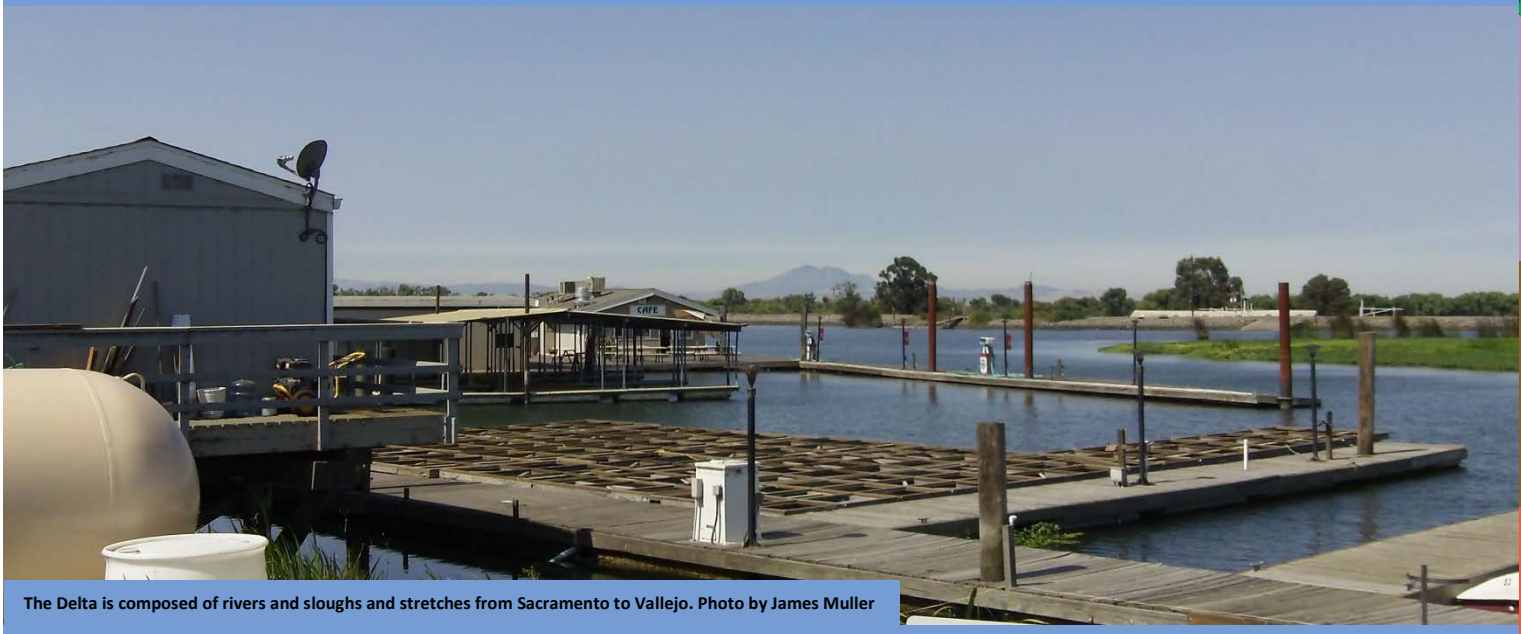
Photo by James Muller

West Point Harbor
This state of the art Marina installed an In-Slip Pumpout System that allows each and every berther to have their own pumpout system without ever leaving the dock. Additionally, their guest pumpout sits along a large guest dock and is very easily accessible to visitors.

FACILITY	STATUS	DESCRIPTION
Brisbane Marina	Non-Operational Aug 2016	Unit works well and is consistently functional
Oyster Cove Marina	Non-Operational Aug 2016	Unit works well but sometimes functions very slowly
Oyster Point Marina		Unit works well and is consistently functional
Coyote Point Marina		Unit works well and is consistently functional
Pillar Point Marina		Unit works well and is consistently functional
***Notes**	Surveys on this unit began in Mid-2015 and no historical usability percentage was calculated	
West Point Harbor		Unit works well and is consistently functional
***Notes**	Surveys on this unit began in Mid-2015 and no historical usability percentage was calculated	
Port of Redwood City		Unit works well and is consistently functional
San Leandro Marina	Non-Operational Mar, Sep 2014; Jan, Mar, Jun, Sep 2015; May 2015	Unit functions well currently but was down for most of 2014/2015
***Notes**	Unit may be difficult to access during low tide as the marina is silting in	

*See page 10 for follow-up taken after each monitoring site visit.

Sacramento/San Joaquin Rivers Delta - North

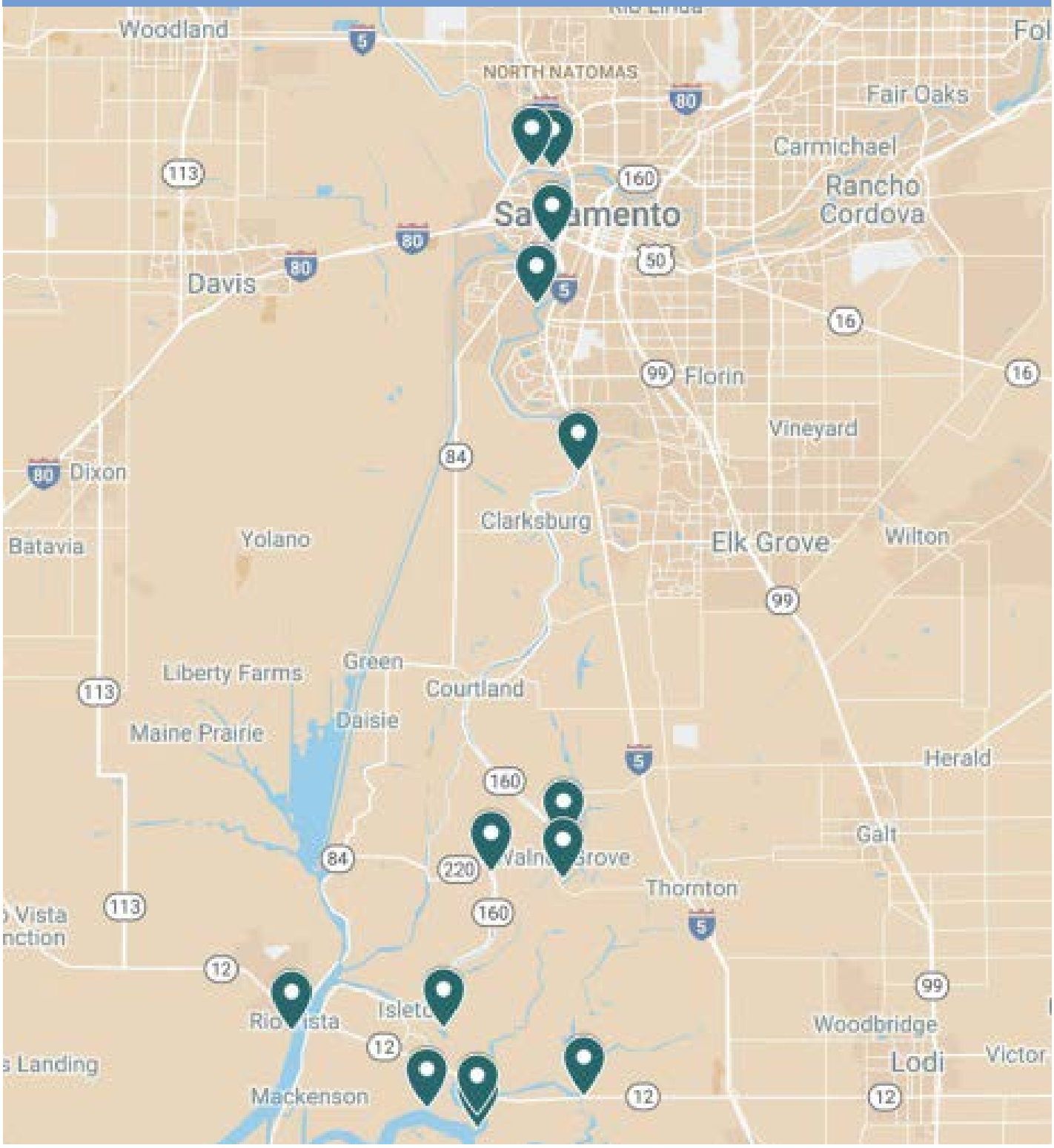


The Delta is composed of rivers and sloughs and stretches from Sacramento to Vallejo. Photo by James Muller

THE SACRAMENTO/SAN JOAQUIN RIVERS DELTA NORTH REGION HOUSES FOURTEEN MARINAS

Riverview Marina
Riverbank Marina
Sacramento Marina
Sherwood Marina
Cliff's Marina
Boathouse Marina
Dagmar's Landing
Walnut Grove Marina
Delta Marina Yacht Harbor
Oxbow Marina
Sacramento Delta Bay Marina
Willow Berm Marina
Korth's Pirate's Layer Marina
Tower Park Marina

Sacramento/San Joaquin Rivers Delta - North



Sacramento/San Joaquin Rivers Delta - North

FACILITY	2016 USABILITY %	HISTORIC USABILITY %	PUMP TYPE
Riverview Marina	49	46	Peristaltic
Riverbank Marina	77	81	Peristaltic
Sacramento Marina	89	89	Peristaltic
Sherwood Marina	0	42	Peristaltic
Cliff's Marina	84	63	Diaphragm
Boathouse Marina	47	70	Unknown
Dagmar's Landing	81	69	Unknown
Walnut Grove Marina	79	67	Peristaltic
Delta Marina Yacht Harbor	65	81	Peristaltic
Oxbow Marina	85	91	Peristaltic
Sacramento Delta Bay Marina	15	67	Peristaltic
Willow Berm Marina	73	84	Vacuum
Korth's Pirate's Layer Marina	81	79	Peristaltic
Tower Park Marina	92	91	Peristaltic

Sacramento/San Joaquin Rivers Delta - North

⟶ SHOW CASE

Photo by Steven Cochrane

Sacramento Marina:
Two different flags are being flown at the Sacramento Marina that shows their pride in keeping the delta waterways clean and free of pollutants. The Clean Marinas Program partners with public and private marinas to promote clean boating practices. Their work has certified over 120 marinas since 2004 and has contributed to increased environmental awareness and stewardship. Sacramento Marina proudly displays their Clean Marina pennant and flies their commitment to promoting pumpout use above.

⟶ MONITORING DETAILS

FACILITY	STATUS	DESCRIPTION
Riverview Marina	Non-Operational Jan, Mar, Jun, Oct, Nov 2015; Feb 2016	Pump has been operational the last 3 surveys but is slow
Riverbank Marina	Non-Operational Feb 2016	Unit works well and is consistently functional
Sacramento Marina		Unit works well and is consistently functional
Sherwood Marina	Non-Operational Jan, Mar, Jun, Oct, Nov 2015; Feb, Jun, Aug, Nov 2016	Unit down since 2014
***Notes**	Sherwood is actively working on replacing the unit	
Cliff's Marina	Non-Operational Mar, Sep 2014	Unit works well and is consistently functional
Boathouse Marina	Non-Operational Mar 2015; Nov 2016	Unit usually functional but has low vacuum. Pumpout times still OK.
***Notes**	Condition of parts and low vacuum resulted in lower usability percentage than expected based on its % operable.	

Sacramento/San Joaquin Rivers Delta - North

FACILITY	STATUS	DESCRIPTION
Dagmar's Landing	Non-Operational Jan, Jun, Oct 2015	Unit
***Notes**	Unit could not be surveyed in two quarters due to inability to gain access to the unit as the marina was closed. Historical usability percentages based on six surveys	
Walnut Grove Marina	Non-Operational Jun 2016	Unit is consistently functional but has slower pumpout times
***Notes**	Recent surveys have shown the unit is much improved with faster pumpout times	
Delta Marina Yacht Harbor	Non-Operational Nov 2016	Unit usually functional but has slower pumpout times
Oxbow Marina		Unit works well and is consistently functional
Sacramento Delta Bay Marina	Non-Operational Jun, Oct 2015; May, Aug, Nov 2016	Pumpout is down much of the time
***Notes**	Marina is intending to replace the unit as it was down most of 2016 and had slow pumpout times before hand	
Willow Berm Marina	Non-Operational Aug 2016	Unit works well and is consistently functional
Korth's Pirate's Layer Marina		Unit works well and is consistently functional
Tower Park Marina		Unit works well and is consistently functional

*See page 10 for follow-up taken after each monitoring site visit.

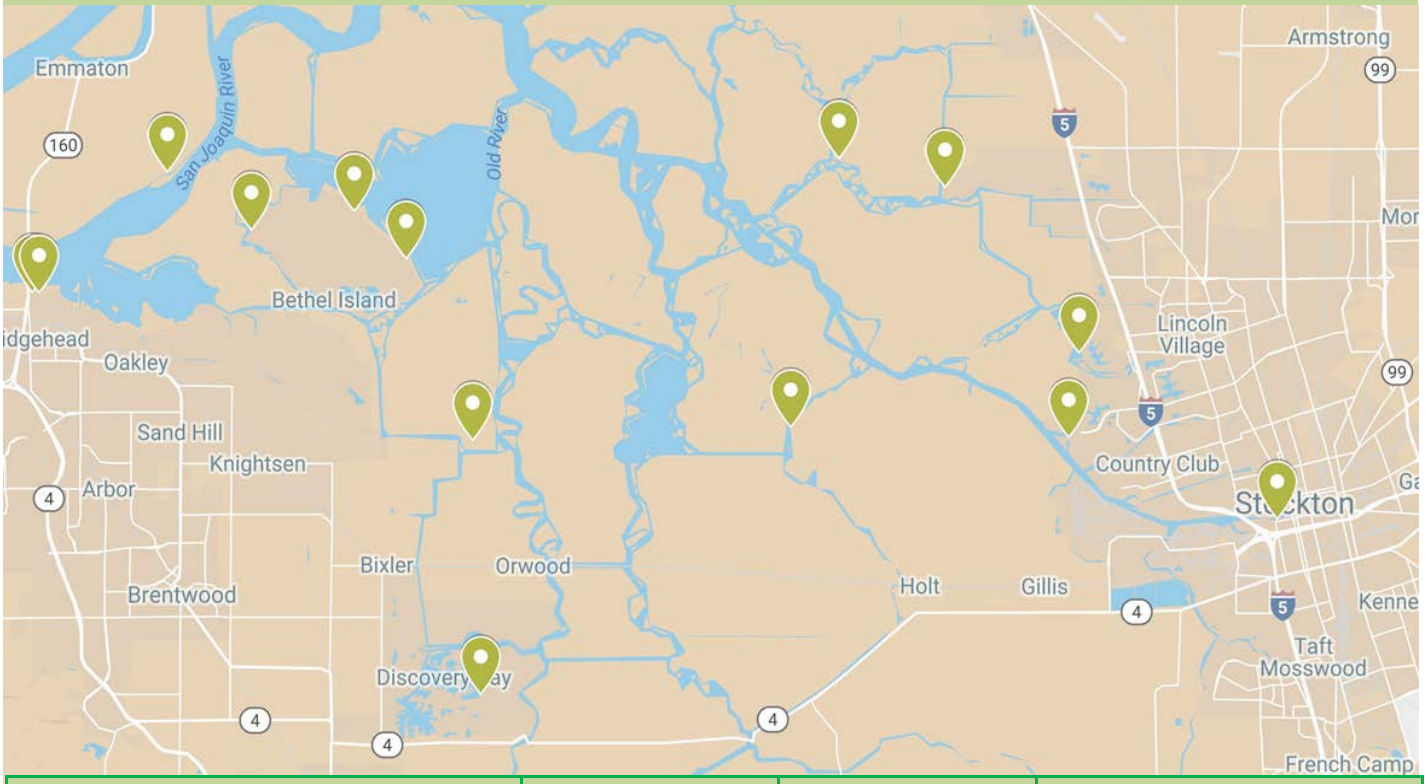
Sacramento/San Joaquin Rivers Delta South

A boater fills out a boating survey during a Honey Pot Day Event in the Delta. Photo by Vivian Matuk

THE SACRAMENTO/SAN JOAQUIN RIVERS DELTA SOUTH REGION HOUSES FOURTEEN MARINAS

Driftwood Marina
Lauritzen Yacht Harbor
Eddo's Harbor
New Life Marina
Bethel Harbor
Sugar Barge Resort
Holland Riverside Marina
Discovery Bay Yacht Harbor
Tiki Lagun Resort
King Island Resort
Paradise Point Marina
Village West Marina
River Point Landing Resort
Stockton Downtown Marina

Sacramento/San Joaquin Rivers Delta - South



FACILITY	2016 USABILITY %	HISTORIC USABILITY %	PUMP TYPE
Driftwood Marina	87	93	Peristaltic
Lauritzen Yacht Harbor – Fuel Dock (east)	88	89	Peristaltic
Lauritzen Yacht Harbor – Fuel Dock (west)	81	88	Peristaltic
Eddo's Harbor	88	81	Peristaltic
New Life Marina	72	80	Peristaltic
Bethel Harbor – Service Dock (east)	90	91	Peristaltic
Bethel Harbor– Service Dock (west)	91	90	Peristaltic
Sugar Barge Resort	86	87	Peristaltic
Holland Riverside Marina	28	43	Vacuum
Discovery Bay Yacht Harbor	88	89	Diaphragm
Tiki Lagun Resort	80	70	Vacuum
King Island Resort	79	82	Peristaltic

Sacramento/San Joaquin Rivers Delta - South

FACILITY	2016 USABILITY %	HISTORIC USABILITY %	PUMP TYPE
Paradise Point Marina – All Four Pumpouts	28	71	Peristaltic
Village West Marina	81	76	Peristaltic
River Point Landing Resort	64	86	Peristaltic
Stockton Downtown Marina – Guest Dock	83	77	Peristaltic
Stockton Downtown Marina – Between Docks E&D	75	71	Peristaltic

⟶ SHOW CASE

Photo by Steven Cochrane

Tiki Lagun Marina
Tiki Lagun has designed their marina to include in-slip pumpouts for their tenants! Similar to West Point Harbor, Willow Berm, and Tower Park, this marina helps to protect the environment by making it as easy as possible for their berthers to pump out. They also have a guest dock pump available for guests.

Sacramento/San Joaquin Rivers Delta - South

→ MONITORING DETAILS

FACILITY	Status	Description
Driftwood Marina		Unit works well and is consistently functional
Lauritzen Yacht Harbor – Fuel Dock (east)		Unit works well and is consistently functional
Lauritzen Yacht Harbor – Fuel Dock (west)		Unit works well and is consistently functional
Eddo's Harbor	Non-Operational Jan 2015	Unit works well but pumps somewhat slowly
New Life Marina	Non-Operational Feb 2016	Unit works well but pumps slowly
***Notes**	Dock Was being repaired during the first survey of 2016. Current usability percentage based on last three surveys	
Bethel Harbor – Service Dock (east)		Unit works well and is consistently functional
***Notes**	Both units on service dock are run from the same motor	
Bethel Harbor– Service Dock (west)		Unit works well and is consistently functional
***Notes**	Both units on service dock are run from the same motor	
Sugar Barge Resort		Unit works well and is consistently functional
Holland Riverside Marina	Non-Operational Mar, Jun 2014; Jan, Jun, Oct, Nov 2015; Feb, May, Aug, Nov 2016	Unit down since 2014
Discovery Bay Yacht Harbor		Unit works well and is consistently functional
Tiki Lagun Resort	Non-Operational Mar 2014	Unit works well but occasionally pumps somewhat slowly

Sacramento/San Joaquin Rivers Delta - South

FACILITY	Status	Description
King Island Resort		Unit works well but pumps somewhat slowly and parts are worn
Paradise Point Marina – All Four Pumpouts	Non-Operational Feb, May, Aug, Nov 2016	Pumpouts down since early 2016. These pumpouts, when working, are relatively slow
Village West Marina		Unit consistently functions and works well but pumps slowly
River Point Landing Resort		Unit consistently works but has been pumping slowly in 2016
Stockton Downtown Marina – Guest Dock		Unit works well and is consistently functional
Stockton Downtown Marina – Between Docks E&D		Unit is consistently functional but pumps slowly on occasion

*See page 10 for follow-up taken after each monitoring site visit.

CALIFORNIA STATE PARKS DIVISION OF BOATING AND WATERWAYS

www.dbw.parks.ca.gov /Environmental/datp

SAN FRANCISCO ESTUARY PARTNERSHIP

www.sfestuary.org/boating

THE BAY FOUNDATION

www.santamonicabay.org

THE BAY FOUNDATION CLEAN BOATING MATERIALS

www.santamonicabay.org/learn/publications

BOATER'S GUIDE APP

itunes.apple.com/us/app/boaters-guide/id823758875?mt=8

HONEY POT DAY

www.honeypotday.org

MOBILE PUMPOUT COMPANIES

www.dbw.parks.ca.gov/PDF/CleanGreen/marinaoilsewage.pdf

⟶ APPENDIX 1:
CALIFORNIA PUMPOUT STATION MONITORING DATA SHEET

SOUTHERN CALIFORNIA PUMPOUT MONITORING 2016		
Date		
Time		
Facility		
Contact		
Address		
Phone, E-mail		
GPS coordinates		
Name of surveyor		
SIGNAGE		
Pumpout symbol/funding credit signage	Yes	No
Instructions signage	Yes	No
Hours of operation signage	Yes	No
Hours of operation		
Pumpout cost signage	Yes	No
"Contact # for problems" signage	Yes	No
On/off buttons signage	Yes	No
Description of signage/sign request?		
GENERAL CONDITION		
Make/Model		
Hours on counter (hr) (Please indicate if unit needs a new counter)		
This pumpout is	Operational	Non-operational
Reason for non-operational		
Condition of parts	3=excellent; 2=worn; 1=needs repair	Comments
Hose		
Nozzle		
Sight glass		
Stanchion		
On/off buttons		
Motor unit		
Ball valve		
Other		
Description of follow up for non-operational pumpout and/or any parts in need of repair ("3")		
Approximate distance from pump to hose stand (ft)	On file	
VACUUM		
Vacuum time (00:00.00)		
Vacuum pressure (hg-1)		

GENERAL COMMENTS

⟶ APPENDIX 1:
CALIFORNIA PUMPOUT STATION MONITORING DATA SHEET

NORTHERN CALIFORNIA PUMPOUT MONITORING 2016

California Pumpout Monitoring 2016

Date:
Time:
Marina Name:
Marina ID#:
Site Address:
City:
Facility Contact:
Phone:
Pump ID #:
Location:
Make/Model:
Meter Installe ☐ Grant ☐
Grant Year:

Operational ☐

Reason for Non-operation:

Recent Repair description:

Signage

Universal Pumpout Signage ☐
State Credit Signiage ☐
Instructions Signage ☐
Hours of Operation Signage ☐
Cost Signage ☐
For Problems Signage ☐
On/Off Buttons Signage ☐

Unit Condition

Condition of Motor Unit:
Condition of Hose:
Condition of Nozzel:
Condition of Sight Glass:
Condition of Backflow Flap:
Condition of Pedistal:
Condition of ON/OFF Buttons:

Previous Reading
Meter Reading
5 Gal. Pump Time
Vacuum Pressure
Tide height at location
Public restroom access?

**Please be sure to:
- Take photos if possible
- Check public restroom access for boaters

Quantity of maps left on location:

Recent Notes from Surveys: